

# Messel Pit Fossil Site

## 1. World Heritage Property Data

### 1.1 - Name of World Heritage property

Messel Pit Fossil Site

### 1.2 - World Heritage property details

### 1.3 - Geographic information table

Name	Coordinates	Property (ha)	Buffer zone (ha)	Total (ha)	Inscription year
Messel Pit Fossil Site	49.917 / 8.754	42	22.5	64.5	1995
Total (ha)		42	22.5	64.5	

### 1.4 - Map(s)

Title	Date	Link to source
Messel Pit Fossil site includes 200m Gauß-Krüger grid, scale 1:2,000	1994	
Map of Inscribed Property 2010	2010	

### Comment

There is an ongoing map process with the WHC (request 2022).

### 1.5 - Web and Social Media data of the property (if applicable)

1. [UNESCO Commission of Germany](#)
2. [Natural site datasheet from WCMC](#)
3. [grube-messel.de](#)
4. [Fossilienlagerstätte Grube Messel \(Deutsche UNESCO-Kommission\)](#)

## 2. Other Conventions/Programmes under which the World Heritage property is protected (if applicable)

### 2.1 - Records indicate that your World Heritage property (in whole or in part) is designated and/or protected under the Conventions/programmes shown in the prefilled table below. Please check and amend as necessary.

		The World Heritage property (in whole or in part) <u>is</u> designated and/or protected under this convention/programme	The World Heritage property (in whole or in part) <u>is not</u> designated and/or protected under this convention/programme
2.1.1	<b>International Register of Cultural Property under Special Protection</b> (1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict)		×
2.1.2	<b>List of Cultural Property under Enhanced Protection</b> (Second Protocol to the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict)		×
2.1.3	<b>The List of Wetlands of International Importance (The Ramsar List)</b> (Convention on Wetlands of International Importance (Ramsar Convention))		×
2.1.4	<b>World Network of Biosphere Reserves</b> Man and the Biosphere (MAB) Programme		×
2.1.5	<b>Global Geoparks Network</b> UNESCO Global Geoparks	×	

### 2.2 - Please provide comments on 2.1 if necessary

### 2.3 - Do your national authorities intend to request the granting of Enhanced Protection (if relevant) under the Second Protocol to the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict for the World Heritage property in the next three years?

No

### 2.4 - Do your national authorities intend to designate whole or part of the World Heritage property for inclusion in the List of Wetlands of International Importance (The Ramsar List), if relevant, in the next three years?

No

**2.5 - Do your national authorities intend to designate whole or part of the World Heritage property as a Man and Biosphere Reserve (if relevant) in the next three years?**

No

**2.6 - Do your national authorities intend to apply for whole or part of World Heritage property to be designated as a UNESCO Global Geopark (if relevant) in the next three years?**

No

**2.7 - Please indicate the level of cooperation at property level between designations under different Conventions/Programmes**

<b>2.7.1</b>	<b>1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict</b>	
2.7.1	There is <b>no contact</b> with the Focal Point(s) of this designation/programme.	✕
2.7.2	The World Heritage Site Manager <b>occasionally</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.3	The World Heritage Site Manager <b>regularly</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.4	The World Heritage Site Manager <b>also manages</b> this designation/programme.	
<b>2.7.2</b>	<b>Second Protocol to the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict</b>	
2.7.1	There is <b>no contact</b> with the Focal Point(s) of this designation/programme.	✕
2.7.2	The World Heritage Site Manager <b>occasionally</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.3	The World Heritage Site Manager <b>regularly</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.4	The World Heritage Site Manager <b>also manages</b> this designation/programme.	
<b>2.7.3</b>	<b>Convention on Wetlands of International Importance (Ramsar Convention)</b>	
2.7.1	There is <b>no contact</b> with the Focal Point(s) of this designation/programme.	✕
2.7.2	The World Heritage Site Manager <b>occasionally</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.3	The World Heritage Site Manager <b>regularly</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.4	The World Heritage Site Manager <b>also manages</b> this designation/programme.	
<b>2.7.4</b>	<b>Man and the Biosphere (MAB) Programme</b>	
2.7.1	There is <b>no contact</b> with the Focal Point(s) of this designation/programme.	✕
2.7.2	The World Heritage Site Manager <b>occasionally</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.3	The World Heritage Site Manager <b>regularly</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.4	The World Heritage Site Manager <b>also manages</b> this designation/programme.	
<b>2.7.5</b>	<b>UNESCO Global Geoparks</b>	
2.7.1	There is <b>no contact</b> with the Focal Point(s) of this designation/programme.	
2.7.2	The World Heritage Site Manager <b>occasionally</b> communicates with the Focal Point(s) of this designation/programme.	✕
2.7.3	The World Heritage Site Manager <b>regularly</b> communicates with the Focal Point(s) of this designation/programme.	
2.7.4	The World Heritage Site Manager <b>also manages</b> this designation/programme.	

**2.8 - Please add any further comments on cooperation with the other designation(s)/programme(s)**

There is a regular collaboration with the UNESCO Global Geopark Bergstraße-Odenwald since 2004 up to today at mangement level.

**2.9 - Are you aware of any elements associated with the World Heritage property that have been inscribed on the Representative List of the Intangible Cultural Heritage?**

No

**2.10 - Please list any elements associated with the World Heritage property inscribed under the Convention for the Safeguarding of the Intangible Cultural Heritage of which you are aware**

**2.11 - Are you aware of any documentary heritage listed under the Memory of the World Programme associated with the World Heritage property?**

No

**2.12 - Please list any documentary heritage associated with the World Heritage property listed under the Memory of the World Programme of which you aware.**

Lorsch Pharmacopoeia (2013), Children's and Household Tales (2005), Gutenberg Bible (2001), Songs of the Nibelungs, a heroic poem from medieval Europe (2009)

3. Statement of Outstanding Universal Value

3.1 - Statement of Outstanding Universal Value for the property as adopted by the World Heritage Committee

Statement of Outstanding Universal Value

Brief synthesis

Messel Pit provides the single best fossil site which contributes to the understanding of evolution and past environments during the Palaeogene, a period which saw the emergence of the first modern mammals. The property includes a detailed geological record of middle Eocene age, dating from 47-48 million years ago. It provides unique information about the early stages of the evolution of mammals and is exceptional in the quality of preservation, quantity and diversity of fossils of over 1000 species of plants and animals, ranging from fully articulated skeletons to feathers, skin, hair and stomach contents. Located in the German Land of Hesse, this area of just 42 ha conserves a rich fossiliferous bed of oil shale some 190 m thick. Discovered through mining activities, the area has now been preserved and has been the subject of important paleontological research, which has greatly contributed to our knowledge of evolutionary history. Significant scientific discoveries include studies of the evolution of echolocation in exceptionally well-preserved fossil bats and vital new data on the evolution of primates, birds and insects.

**Criterion (vii):** Messel Pit Fossil Site is considered to be the single best site which contributes to the understanding of the Eocene, when mammals became firmly established in all principal land ecosystems. The state of preservation of its fossils is exceptional and allows for high-quality scientific work.

Integrity

As the Messel Pit is the former site of an oil shale mine, the land surface has been significantly disturbed. Paradoxically, if there had been no mine, the scientific values of the property would have never been discovered. Once mining was discontinued in the late 1960's, the site was opened to private prospection and even proposed as a refuse dump in 1971, a threat that led to increased scientific prospection and public concern. This culminated in the purchase of the pit by the government and its full protection as a cultural monument. The extraordinary state of conservation of the property's fossils, which allows for the reconstruction of the morphology of the preserved fauna and flora as well as that of their environment, and the serious commitment by government for its long-term maintenance as a site of scientific importance, means that the conditions of integrity for the property are fully met. Although much material has been taken from the site - approximately 20 million tonnes of rock in a century of mining activities - the volume of fossil-bearing oil shale sediments is still massive and far from depleted.

Protection and management requirements

The Land of Hesse is the legal owner of the Messel Fossil Pit. The oil shale in the pit is a historical mineral resource, making it part of the cultural heritage as defined in the Hessian *Heritage Protection Act*. Operations in the mine are governed by the *Federal Mining Act*. The property is jointly managed through an agreement between the government, the Senckenberg Society for Nature Research and the Messel Pit World Heritage Non-Profit Limited, an NGO founded in 2003, which has as its principal responsibility the presentation of the site to visitors. Shareholders of this NGO are the Land of Hesse, the Senckenberg Society for Nature Research and the municipality of Messel. The Messel Pit Fossil Site is administrated separately from the Federal State budget.

Under German law, the Senckenberg Society for Nature Research is the operator of the mine, which has an agreement with the Land of Hesse for the protection and preservation of the Messel Pit. The operator is responsible for the main operating plan of the mine, which includes water drainage, slope reinforcement, management of encroaching vegetation, protection against trespassers and management of the former North-East Dump, as well as for sustaining scientific research. The property is surrounded by a perimeter fence and controls on excavation and disturbance to the oil shale are in place. Various development and landscape plans for the property have been produced, as well as an overall Management Plan. A 22.5 ha buffer zone surrounding the property was defined in order to strengthen the integrity of the property and support its effective protection and management. A viewing platform overlooking the pit, a visitor information centre and a wide range of communication activities concerning the property are in place.

Comment

Criterion (vii) is incorrect - correct is: (viii)

3.2 - Please list the key attributes of Outstanding Universal Value of your property and give an assessment of their condition. As a guideline, it is suggested to focus on approximately five key attributes (no more than 15 overall).

	Brief identification of attribute	Preserved	Compromised	Seriously compromised	Lost
3.2.1	Geological record of rich fossiliferous beds of oil shale from the middle Eocene	✗			
3.2.2	Exceptional preservation	✗			
3.2.3	Quantity and diversity of fossil organisms	✗			
3.2.4	Location and characteristics of the open pit	✗			
3.2.5	Scientific significance	✗			
3.2.6					
3.2.7					
3.2.8					
3.2.9					
3.2.10					
3.2.11					
3.2.12					
3.2.13					
3.2.14					
3.2.15					

### 3.3 - Comments, conclusions and/or recommendations related to Statement of Outstanding Universal Value

#### 4. Factors Affecting the Property

##### 4.1. Buildings and Development

###### 4.1.1 - Housing

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

###### 4.1.2 - Commercial development

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

###### 4.1.3 - Industrial areas

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Outside

✕ Relevant	Not relevant						
	Impact		Origin		Trend of impact		
Impact	🔥 Current	🔥 Potential	📍 Inside	📍 Outside	↘ Decreasing	→ Stable	↗ Increasing
➕ Positive ✕	✕			✕	↘		
➖ Negative							

###### 4.1.4 - Major visitor accommodation and associated infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

###### 4.1.5 - Interpretative and visitation facilities

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Outside

✕ Relevant	Not relevant						
	Impact		Origin		Trend of impact		
Impact	🔥 Current	🔥 Potential	📍 Inside	📍 Outside	↘ Decreasing	→ Stable	↗ Increasing
➕ Positive ✕	✕			✕			↗
➖ Negative							

###### 4.1.6 - Please comment as necessary on how the factors selected as relevant in 4.1 are affecting the property either negatively or positively

4.1.3 Industrial use is decreasing and the renaturation plan has started. 4.1.5 Improved access for handicapped people. Cooperation with international artists, the International Forest Art Darmstadt and the UNESCO Global Geopark Bergstraße-Odenwald resulted in art sculptures since 2018.

##### 4.2. Transportation Infrastructure

###### 4.2.1 - Ground transport infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

✕ Relevant	Not relevant						
	Impact		Origin		Trend of impact		
Impact	🔥 Current	🔥 Potential	📍 Inside	📍 Outside	↘ Decreasing	→ Stable	↗ Increasing
➕ Positive ✕	✕			✕			↗
➖ Negative							

#### 4.2.2 - Underground transport infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.2.3 - Air transport infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.2.4 - Marine transport infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant











#### 4.2.5 - Effects arising from use of transportation infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

✕ Relevant

Not relevant

	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕			✕			
 Negative							

#### 4.2.6 - Please comment as necessary on how the factors selected as relevant in 4.2 are affecting the property either negatively or positively

4.2.1 and 4.2.5 Public infrastructure in the vicinity at the train station (Messel station) has been made handicapped accessible. New regular bus line connecting directly the site, Messel station and Darmstadt main station.

### 4.3. Services Infrastructures

#### 4.3.1 - Water infrastructure

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant











#### 4.3.2 - Renewable energy facilities

Previous answer Cycle 2 (12/07/2013):

- Not relevant

✕ Relevant

Not relevant

	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕			✕			
 Negative							

#### 4.3.3 - Non-renewable energy facilities

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.3.4 - Localised utilities

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.3.5 - Major linear utilities

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.3.6 - Please comment as necessary on how the factors selected as relevant in 4.3 are affecting the property either negatively or positively

In 4.3.2 the factor "geothermal heating" for the visitor center is meant and is a positive factor (sustainable energy) plus it is outside of the WH property.

#### 4.4. Pollution

##### 4.4.1 - Pollution of marine waters

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.4.2 - Ground water pollution

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.4.3 - Surface water pollution

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.4.4 - Air pollution

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.4.5 - Solid waste

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.4.6 - Input of excess energy

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.4.7 - Please comment as necessary on how the factors selected as relevant in 4.4 are affecting the property either negatively or positively

#### 4.5. Biological resource use/modification

##### 4.5.1 - Fishing/collecting aquatic resources

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.5.2 - Aquaculture

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.5.3 - Land conversion

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.4 - Livestock farming/Grazing of domesticated animals

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.5 - Crop production

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.6 - Commercial wild plant collection

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.7 - Subsistence wild plant collection

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.8 - Commercial hunting

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.9 - Subsistence hunting

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.10 - Forestry/Wood production

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.5.11 - Please comment as necessary on how the factors selected as relevant in 4.5 are affecting the property either negatively or positively

### 4.6. Physical resource extraction

#### 4.6.1 - Mining

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.6.2 - Quarrying

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.6.3 - Oil and gas

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.6.4 - Water (extraction)

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

4.6.5 - Please comment as necessary on how the factors selected as relevant in 4.6 are affecting the property either negatively or positively

4.7. Local conditions affecting physical fabric

4.7.1 - Wind

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.2 - Relative humidity

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.3 - Temperature

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.4 - Radiation/Light

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.5 - Dust

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.6 - Water (rain/water table)

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.7 - Pests

Previous answer Cycle 2 (12/07/2013):

- Not relevant

✕ Relevant		Not relevant					
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive							
 Negative ✕	✕		✕	✕			

4.7.8 - Micro-organisms

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

4.7.9 - Please comment as necessary on how the factors selected as relevant in 4.7 are affecting the property either negatively or positively

4.7.7 Increasing population of nutria and wild boar affect the property by their burrowing activities.

4.8. Social/Cultural uses of heritage

4.8.1 - Ritual/Spiritual/Religious and associative uses

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant	✕ Not relevant
----------	----------------

#### 4.8.2 - Society's valuing of heritage

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.8.3 - Indigenous hunting, gathering and collecting

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.8.4 - Changes in traditional ways of life and knowledge system

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.8.5 - Identity, social cohesion, changes in local population and community

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant










#### 4.8.6 - Impacts of tourism/Visitation/Recreation

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Outside

✕ Relevant

Not relevant

	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕	✕		→	
 Negative							

#### 4.8.7 - Please comment as necessary on how the factors selected as relevant in 4.8 are affecting the property either negatively or positively

4.8.6 Since the last reporting the visitor monitoring shows that on average 35.000 visitors have visited the property with guided tours per year.

#### 4.9. Other human activities

##### 4.9.1 - Illegal activities

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.9.2 - Deliberate destruction of heritage

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.9.3 - Military training

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.9.4 - War

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.9.5 - Terrorism

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.9.6 - Civil unrest

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.9.7 - Please comment as necessary on how the factors selected as relevant in 4.9 are affecting the property either negatively or positively

#### 4.10. Climate change and severe weather events

##### 4.10.1 - Storms

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.2 - Flooding

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.3 - Drought

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.4 - Desertification

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.5 - Changes to oceanic waters

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.6 - Temperature change

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.10.7 - Other climate change impacts

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.10.8 - Please comment as necessary on how the factors selected as relevant in 4.10 are affecting the property either negatively or positively

#### 4.11. Sudden ecological or geological events

##### 4.11.1 - Volcanic eruption

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.11.2 - Earthquake

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.11.3 - Tsunami/Tidal wave

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

#### 4.11.4 - Avalanche/Landslide

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant











#### 4.11.5 - Erosion and siltation/Deposition

Previous answer Cycle 2 (12/07/2013):

- Relevant, Negative, Current, Inside

✕ Relevant

Not relevant

	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive							
 Negative ✕	✕		✕				

#### 4.11.6 - Fire (wildfire)

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

**4.11.7 - Please comment as necessary on how the factors selected as relevant in 4.11 are affecting the property either negatively or positively**

#### 4.12. Invasive/alien species or hyper-abundant species

##### 4.12.1 - Translocated species

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.12.2 - Invasive/Alien terrestrial species

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.12.3 - Invasive/Alien freshwater species

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.12.4 - Invasive/Alien marine species

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.12.5 - Hyper-abundant species

Previous answer Cycle 2 (12/07/2013):

- Not relevant

Relevant

✕ Not relevant

##### 4.12.6 - Modified genetic material

Previous answer Cycle 2 (12/07/2013):

- Not relevant


Relevant

✕ Not relevant







**4.12.7 - Please comment as necessary on how the factors selected as relevant in 4.12 are affecting the property either negatively or positively**

#### 4.13. Management and institutional factors

##### 4.13.1 - Management system/Management plan

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕	✕		→	
 Negative							

##### 4.13.2 - Legal framework

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕			→	
 Negative							

##### 4.13.3 - Governance

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕			→	
 Negative							

##### 4.13.4 - Management activities

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Inside

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕			→	
 Negative							

##### 4.13.5 - Financial resources

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕			→	
 Negative							








##### 4.13.6 - Human resources

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕			→	
 Negative							

#### 4.13.7 - Low impact research/monitoring activities

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Inside

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕				
 Negative							

#### 4.13.8 - High impact research/monitoring activities

Previous answer Cycle 2 (12/07/2013):

- Relevant, Positive, Current, Inside

✕ Relevant				Not relevant			
	Impact		Origin		Trend of impact		
Impact	 Current	 Potential	 Inside	 Outside	 Decreasing	 Stable	 Increasing
 Positive ✕	✕		✕	✕			
 Negative							

#### 4.13.9 - Please comment as necessary on how the factors selected as relevant in 4.13 are affecting the property either negatively or positively































4.13.8 Research excavations follow strict protocol with agreement and under control of the monument protection authority. Research activities in collaboration with international and national research institutions; IUGS award 2022 - 100 first geoheritage sites of the IUGS.

#### 4.14. Other factor(s)

##### 4.14.1 - Other factor(s)

#### 4.15. Factors Summary Table

##### 4.15.1 - Factors Summary Table

Name	Impact		Origin		Trend	
4.1 Buildings and Development						
4.1.3 Industrial areas						
4.1.5 Interpretative and visitation facilities						
4.2 Transportation Infrastructure						
4.2.1 Ground transport infrastructure						
4.2.5 Effects arising from use of transportation infrastructure						
4.3 Services Infrastructures						
4.3.2 Renewable energy facilities						
4.7 Local conditions affecting physical fabric						
4.7.7 Pests						
						
4.8 Social/Cultural uses of heritage						
4.8.6 Impacts of tourism/Visitation/Recreation						

4.11 Sudden ecological or geological events						
4.11.5 Erosion and siltation/Deposition						
4.13 Management and institutional factors						
4.13.1 Management system/Management plan						
4.13.2 Legal framework						
4.13.3 Governance						
4.13.4 Management activities						
4.13.5 Financial resources						
4.13.6 Human resources						
4.13.7 Low impact research/monitoring activities						
4.13.8 High impact research/monitoring activities						
<b>Legend</b> Current          Potential          Negative          Positive          Inside          Outside						

## 4.16. Assessment of current and potential positive and negative factors





### 4.16.1 - Assessment of current and potential negative and positive factors

#### 4.1 Buildings and Development

Name	Impact			Origin		Trend
4.1.3 Industrial areas						

Spatial scale - Area affected by the factor	
	Restricted
	Localised
	Extensive
	Widespread
Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
	On-going
Impact - Impact on the attributes	
	Insignificant
	Minor





	Significant
	Major
<b>Management response - Capacity of management to respond</b>	
	High capacity
	Medium capacity
	Low capacity
✕	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
✕	Decreasing
	Static
	Increasing

Name	Impact	Origin	Trend
4.1.5 Interpretative and visitation facilities	 		

<b>Spatial scale - Area affected by the factor</b>	
	Restricted
✕	Localised
	Extensive
	Widespread
<b>Temporal scale - Occurrence of the impact</b>	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going
<b>Impact - Impact on the attributes</b>	
	Insignificant
	Minor
	Significant
✕	Major
<b>Management response - Capacity of management to respond</b>	
✕	High capacity
	Medium capacity
	Low capacity
	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
	Static
✕	Increasing

## 4.2 Transportation Infrastructure

Name	Impact	Origin	Trend
------	--------	--------	-------

4.2.1 Ground transport infrastructure						

#### Spatial scale - Area affected by the factor

	Restricted
✕	Localised
	Extensive
	Widespread

#### Temporal scale - Occurrence of the impact

	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going

#### Impact - Impact on the attributes




	Insignificant
	Minor
✕	Significant
	Major

#### Management response - Capacity of management to respond

	High capacity
	Medium capacity
✕	Low capacity
	No capacity and / or resources

#### Trend - Development over the last 6 years

	Decreasing
	Static
✕	Increasing

Name	Impact			Origin	Trend
4.2.5 Effects arising from use of transportation infrastructure					

#### Spatial scale - Area affected by the factor

	Restricted
✕	Localised
	Extensive
	Widespread

#### Temporal scale - Occurrence of the impact




	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going

#### Impact - Impact on the attributes

	Insignificant
--	---------------

	Minor
✕	Significant
	Major
<b>Management response - Capacity of management to respond</b>	
	High capacity
	Medium capacity
✕	Low capacity
	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
	Static
✕	Increasing

### 4.3 Services Infrastructures

Name	Impact	Origin	Trend
4.3.2 Renewable energy facilities	 		

<b>Spatial scale - Area affected by the factor</b>	
	Restricted
✕	Localised
	Extensive
	Widespread
<b>Temporal scale - Occurrence of the impact</b>	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going
<b>Impact - Impact on the attributes</b>	
✕	Insignificant
	Minor
	Significant
	Major
<b>Management response - Capacity of management to respond</b>	
✕	High capacity
	Medium capacity
	Low capacity
	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing

## 4.7 Local conditions affecting physical fabric





Name		Impact			Origin		Trend
4.7.7 Pests							
<b>Spatial scale - Area affected by the factor</b>							
<input checked="" type="checkbox"/>	Restricted						
<input type="checkbox"/>	Localised						
<input type="checkbox"/>	Extensive						
<input type="checkbox"/>	Widespread						
<b>Temporal scale - Occurrence of the impact</b>							
<input checked="" type="checkbox"/>	One off or rare						
<input type="checkbox"/>	Intermittent or sporadic						
<input type="checkbox"/>	Frequent						
<input type="checkbox"/>	On-going						
<b>Impact - Impact on the attributes</b>							
<input checked="" type="checkbox"/>	Insignificant						
<input type="checkbox"/>	Minor						
<input type="checkbox"/>	Significant						
<input type="checkbox"/>	Major						
<b>Management response - Capacity of management to respond</b>							
<input type="checkbox"/>	High capacity						
<input type="checkbox"/>	Medium capacity						
<input checked="" type="checkbox"/>	Low capacity						
<input type="checkbox"/>	No capacity and / or resources						
<b>Trend - Development over the last 6 years</b>							
<input type="checkbox"/>	Decreasing						
<input type="checkbox"/>	Static						
<input checked="" type="checkbox"/>	Increasing						

## 4.8 Social/Cultural uses of heritage

Name		Impact			Origin		Trend
4.8.6 Impacts of tourism/Visitation/Recreation							
<b>Spatial scale - Area affected by the factor</b>							
<input checked="" type="checkbox"/>	Restricted						
<input type="checkbox"/>	Localised						
<input type="checkbox"/>	Extensive						
<input type="checkbox"/>	Widespread						
<b>Temporal scale - Occurrence of the impact</b>							
<input type="checkbox"/>	One off or rare						

	Intermittent or sporadic
	Frequent
✕	On-going
<b>Impact - Impact on the attributes</b>	
	Insignificant
	Minor
	Significant
✕	Major
<b>Management response - Capacity of management to respond</b>	
	High capacity
✕	Medium capacity
	Low capacity
	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing






#### 4.11 Sudden ecological or geological events

Name	Impact			Origin		Trend
4.11.5 Erosion and siltation/Deposition						
						

<b>Spatial scale - Area affected by the factor</b>	
✕	Restricted
	Localised
	Extensive
	Widespread
<b>Temporal scale - Occurrence of the impact</b>	
	One off or rare
	Intermittent or sporadic
✕	Frequent
	On-going
<b>Impact - Impact on the attributes</b>	
	Insignificant
✕	Minor
	Significant
	Major
<b>Management response - Capacity of management to respond</b>	
	High capacity
	Medium capacity
✕	Low capacity
	No capacity and / or resources

Trend - Developement over the last 6 years	
	Decreasing
✕	Static
	Increasing

#### 4.13 Management and institutional factors

Name	Impact	Origin	Trend
4.13.1 Management system/Management plan	 	 	






Spatial scale - Area affected by the factor	
	Restricted
✕	Localised
	Extensive
	Widespread

Temporal scale - Occurence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going

Impact - Impact on the attributes	
	Insignificant
	Minor
	Significant
✕	Major

Management response - Capacity of management to respond	
✕	High capacity
	Medium capacity
	Low capacity
	No capacity and / or resources

Trend - Developement over the last 6 years	
	Decreasing
✕	Static
	Increasing

Name	Impact	Origin	Trend
4.13.2 Legal framework	 	 	


Spatial scale - Area affected by the factor	
✕	Restricted
	Localised
	Extensive
	Widespread

Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
X	On-going

Impact - Impact on the attributes	
	Insignificant
	Minor
X	Significant
	Major

Management response - Capacity of management to respond	
	High capacity
	Medium capacity
X	Low capacity
	No capacity and / or resources

Trend - Development over the last 6 years	
	Decreasing
X	Static
	Increasing

Name	Impact			Origin		Trend
4.13.3 Governance						





Spatial scale - Area affected by the factor	
X	Restricted
	Localised
	Extensive
	Widespread

Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
X	On-going

Impact - Impact on the attributes	
	Insignificant
	Minor
X	Significant
	Major

Management response - Capacity of management to respond	
	High capacity
	Medium capacity
X	Low capacity

	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing

Name	Impact	Origin	Trend
4.13.4 Management activities	 		



<b>Spatial scale - Area affected by the factor</b>	
	Restricted
✕	Localised
	Extensive
	Widespread

<b>Temporal scale - Occurrence of the impact</b>	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going

<b>Impact - Impact on the attributes</b>	
	Insignificant
	Minor
	Significant
✕	Major





<b>Management response - Capacity of management to respond</b>	
	High capacity
	Medium capacity
✕	Low capacity
	No capacity and / or resources

<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing

Name	Impact	Origin	Trend
4.13.5 Financial resources	 		





<b>Spatial scale - Area affected by the factor</b>	
	Restricted
✕	Localised
	Extensive
	Widespread

Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going
Impact - Impact on the attributes	
	Insignificant
	Minor
✕	Significant
	Major
Management response - Capacity of management to respond	
	High capacity
	Medium capacity
✕	Low capacity
	No capacity and / or resources
Trend - Development over the last 6 years	
	Decreasing
✕	Static
	Increasing

Name	Impact			Origin		Trend
4.13.6 Human resources						

Spatial scale - Area affected by the factor	
	Restricted
✕	Localised
	Extensive
	Widespread
Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going
Impact - Impact on the attributes	
	Insignificant
	Minor
✕	Significant
	Major
Management response - Capacity of management to respond	
	High capacity
	Medium capacity
✕	Low capacity

	No capacity and / or resources
<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing

Name	Impact	Origin	Trend
4.13.7 Low impact research/monitoring activities	 		





<b>Spatial scale - Area affected by the factor</b>	
	Restricted
	Localised
	Extensive
✕	Widespread

<b>Temporal scale - Occurrence of the impact</b>	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going

<b>Impact - Impact on the attributes</b>	
	Insignificant
	Minor
	Significant
✕	Major

<b>Management response - Capacity of management to respond</b>	
✕	High capacity
	Medium capacity
	Low capacity
	No capacity and / or resources

<b>Trend - Development over the last 6 years</b>	
	Decreasing
✕	Static
	Increasing

Name	Impact	Origin	Trend
4.13.8 High impact research/monitoring activities	 	 	

<b>Spatial scale - Area affected by the factor</b>	
	Restricted
	Localised
	Extensive
✕	Widespread

Temporal scale - Occurrence of the impact	
	One off or rare
	Intermittent or sporadic
	Frequent
✕	On-going
Impact - Impact on the attributes	
	Insignificant
	Minor
	Significant
✕	Major
Management response - Capacity of management to respond	
✕	High capacity
	Medium capacity
	Low capacity
	No capacity and / or resources
Trend - Development over the last 6 years	
	Decreasing
✕	Static
	Increasing

#### 4.17. Serial inscriptions (national or transnational)

**4.17.1 - If your property is a serial inscription (national or transnational) please identify which components of the property are impacted by each factor**

#### 4.18. Prediction of the state of conservation at next cycle of Periodic Reporting.

**4.18.1 - Please predict what the state of conservation of each attribute will be approximately 6 years from now (at the time of the next cycle of Periodic Reporting)**

	Attribute	Preserved	Compromised	Seriously compromised	Lost
4.18.1.1	Geological record of rich fossiliferous beds of oil shale from the middle Eocene	✕			
4.18.1.2	Exceptional preservation	✕			
4.18.1.3	Quantity and diversity of fossil organisms	✕			
4.18.1.4	Location and characteristic of open pit	✕			
4.18.1.5	Scientific significance	✕			

### 5. Protection and Management of the Property

#### 5.1. Boundaries and Buffer Zones

**5.1.1 - Are the boundaries of the World Heritage property adequate to maintain the property's Outstanding Universal Value?**

The boundaries are **adequate to maintain** the property's Outstanding Universal Value

**5.1.2 - Are the boundaries of the World Heritage property known and recognised?**

The boundaries are **known by both** the management authority and local communities/landowners

**5.1.3 - Are the buffer zone(s) of the World Heritage property adequate to maintain the property's Outstanding Universal Value?**

The buffer zones are **adequate** to maintain the property's Outstanding Universal Value

**5.1.4 - Are the boundaries of the buffer zones known and recognised?**

The buffer zones of the World Heritage property are **known and recognised by both** the management authority and local communities/landowners

**5.1.5 - Comments, conclusions and/or recommendations related to boundaries and buffer zones of the World Heritage property**

#### 5.2. Protective Measures

### 5.2.1 - Protective designation (legal, regulatory, contractual, planning, institutional and/or traditional).

#### Comment

Legal protection as cultural monument after Hesse law in 1992. The Messel Pit is the property of Land Hesse and is therefore publicly owned. In 1991, the oil shale in the pit was declared a historical mineral resource, which makes it part of the cultural heritage as defined in the Heritage Protection Act (Denkmalschutzgesetz) of Land Hesse - HDSCHG from 28th November 2016.

### 5.2.2 - Please list any legislation and other measures (regulatory -including spatial planning- contractual, institutional or traditional) not included in 5.2.1 and indicate the category

2016 / Heritage Protection Act (Denkmalschutzgesetz) of Land Hesse / x /

### 5.2.3 - Is the legal framework (i.e. legislation and/or regulation including spatial planning) adequate for maintaining the Outstanding Universal Value including conditions of Integrity and/or Authenticity of the property?

The **legal framework** for maintaining of the Outstanding Universal Value including conditions of Authenticity and/or Integrity of the World Heritage property provides an **adequate basis for effective management and protection**

### 5.2.4 - Is the legal framework (i.e. legislation and/or regulation) adequate in the buffer zone for maintaining the Outstanding Universal Value including conditions of Integrity and/or Authenticity of the property?

The **legal framework** in the buffer zone for the maintenance of the Outstanding Universal Value including conditions of Authenticity and/or Integrity of the World Heritage property provides an **adequate basis for effective management and protection**

### 5.2.5 - Is the legal framework (i.e. legislation and/or regulation) in the broader setting of the World Heritage property adequate for maintaining the Outstanding Universal Value including conditions of Integrity and/or Authenticity of the property?

The **legal framework** for the broader setting of the World Heritage property provides an **adequate basis for** effective management and protection of the property, contributing to the maintenance of its Outstanding Universal Value including conditions of Authenticity and/or Integrity

### 5.2.6 - Can the legal framework (i.e. legislation and/or regulation) be enforced?

There is **adequate capacity/resources** to enforce legislation and/or regulation in the World Heritage property

### 5.2.7 - Please provide a short summary of how the legislation, including spatial planning and other regulation, works in practice

### 5.2.8 - Comments, conclusions and/or recommendations about the information related to the measures taken to protect the World Heritage property

## 5.3. Management System/Management Plan

### 5.3.1 - Please check the box which most closely match the character of the governance and management system of the property

Public management system at provincial/regional level

If 'Other', please specify

The responsibility for the management system of the property lies with the state of Hesse as the owner of the property. The operator of the WHS is commissioned by the state of Hesse.

### 5.3.2 - Management System: Please indicate which of the various management tools listed below are used to help protect the property.


A management plan

An annual work plan or business plan

A visitor/visitation management plan

### 5.3.3 - Please give a brief description of the management system currently in place at your property

### 5.3.4 - Management Documents

Title	Status	Available	Date	Link to source
Messel Pit Fossil Site Management Plan	N/A	Available	2009	

### 5.3.5 - Has any use been made of the 2011 Recommendation on the Historic Urban Landscape in developing policies and best practices for the protection of this property?

The 2011 Recommendation on the Historic Urban Landscape is **not relevant** to this property

### 5.3.6 - If the Historic Urban Landscape Recommendation has been used at this property, please describe briefly what has been done.

### 5.3.7 - Has any use been made of the Policy Document on the Impacts of Climate Change on World Heritage Properties at the property?

The policy for dealing with climate change is **fully based** on the agreed World Heritage policy

### 5.3.8 - If the Climate Change policy has been used, please briefly describe what has been done along with any research on the impacts of Climate Change on the property:

### 5.3.9 - Has any use been made of the Strategy for Reducing Risks from Disasters at World Heritage Properties at the property ?

The risk management policy is **fully based** on the agreed Strategy for Reducing Risks from Disasters at World Heritage Properties

**5.3.10 - If the Strategy for Reducing Risks from Disasters at World Heritage Properties has been used, please briefly describe what has been done**

**5.3.11 - Rate the coordination between the various levels of administration (i.e. national/federal; regional/provincial/state; local/municipal etc.) involved in the management of the World Heritage property**

There is **adequate coordination** between all bodies/levels involved in the management of the property

**5.3.12 - Is the management system/plan adequate to maintain the property's Outstanding Universal Value?**

The management system/plan is **fully adequate** to maintain the property's Outstanding Universal Value

**5.3.13 - Is the management system being implemented?**

The management system is being **fully implemented and monitored**

**5.3.14 - Is there an annual work/action plan and is it being implemented?**

An annual work/action plan **exists and many of its activities** are being implemented

**5.3.15 - Does the management system include formal mechanisms and procedures that ensure participation and contribution of the following groups, living within or near the World Heritage property and/or buffer zone in management decisions that maintain the Outstanding Universal Value of the property?**

		Not applicable	No mechanisms for participation	Some participation	Direct participation	Transformative participation in all relevant decision processes
5.3.15.1	Local communities			✗		
5.3.15.2	Local authorities					✗
5.3.15.3	Landowners in the property and the buffer zone				✗	
5.3.15.4	Indigenous peoples	✗				
5.3.15.5	Women	✗				
5.3.15.6	Other specific groups			✗		
	If you selected, 'Other specific groups' please specify	UNESCO Global Geopark Bergstraße-Odenwald, International Forest Art, Museum Messel				

**5.3.16 - Please rate the cooperation/relationship between the World Heritage property managers/coordinators/staff and the following groups**

		Not applicable	Non-existent	Poor	Fair	Good
5.3.16.1	Local communities				✗	
5.3.16.2	Local/Municipal authorities					✗
5.3.16.3	Indigenous peoples	✗				
5.3.16.4	Landowners					✗
5.3.16.5	Women					✗
5.3.16.6	Youth/Children					✗
5.3.16.7	Researchers					✗
5.3.16.8	Local Visitors/Tourists					✗
5.3.16.9	National/International tourists					✗
5.3.16.10	Tourism Industry					✗
5.3.16.11	Local businesses and industries				✗	
5.3.16.12	NGOs				✗	
5.3.16.13	Other specific groups					✗
	If you selected 'Other specific groups', please specify	UNESCO Global Geopark Bergstraße-Odenwald, Darmstadt Citymarketing, Museum Messel				

**5.3.17 - Please rate the extent to which the management system of your property contributes towards achieving the objectives of the World Heritage Committee's Policy for the Integration of a Sustainable Development Perspective into the Processes of the *World Heritage Convention***

		Not applicable	No contribution	Limited	Significant	Full achievement
--	--	----------------	-----------------	---------	-------------	------------------

5.3.17.1	The management system of the property contributes to gender equality					×
5.3.17.2	The management system of the property provides ecosystem services/benefits to the local community (e.g. fresh air, water, food, medicinal plants)					×
5.3.17.3	The management system of the property contributes to social inclusion and equity, improving opportunities for all, irrespective of age, sex, disability, ethnicity, origin, religion or economic or other status					×
5.3.17.4	The management system of the property integrates a human rights-based approach					×
5.3.17.5	The management system of the property contributes to fostering inclusive local economic development, and to enhancing livelihood					×
5.3.17.6	The management system of the property contributes to conflict prevention, including respect for cultural diversity within and around the World Heritage property					×

**5.3.18 - Please provide further details on the ratings of the management system given in the table above**

**5.3.19 - Comments, conclusions and/or recommendations related to the management system/plan**

## 6. Financial and Human Resources

### 6.1. Funding

**6.1.1 - If your funding sources do not exactly fit those shown, put the relevant amounts against the funding type that most closely represents your situation, and use the comment box below to provide more details.**

		Project costs	Running costs
6.1.1.1	Multilateral funding (GEF, World Bank, etc.)	0 %	0 %
6.1.1.2	Bilateral international funding	0 %	0 %
6.1.1.3	World Heritage Fund (International Assistance)	0 %	0 %
6.1.1.4	Contribution from other conventions and programmes	0 %	0 %
6.1.1.5	International donations (NGOs, foundations, etc.)	0 %	0 %
6.1.1.6	Governmental (national/federal)	65 %	31 %
6.1.1.7	Governmental (regional/provincial/state)	0 %	54 %
6.1.1.8	Governmental (local/municipal)	0 %	0 %
6.1.1.9	In-country donations (NGOs, foundations, etc.)	35 %	2 %
6.1.1.10	Individual visitor charges (e.g. entry, toilets, parking, camping fees, etc.)	0 %	9 %
6.1.1.11	Commercial activities (e.g. merchandising and catering, filming permit, concessions, etc.)	0 %	2 %
6.1.1.12	Other	0 %	2 %
		Total 100 %	Total 100 %

**6.1.2 - Please comment here on any other aspects of funding sources not covered in the table above**

**6.1.3 - Is the current budget sufficient to manage the World Heritage property effectively?**

The available **budget is acceptable** but **could be further improved** to fully meet the management needs

**6.1.4 - Are the existing sources of funding secure and likely to remain so?**

The existing sources of funding are **secure over both the medium- and long-term**

**6.1.5 - Comments, conclusion, and/or recommendations related to finance and infrastructure**

**6.1.6 - Estimate the distribution of men and women involved in the management, conservation, interpretation of the World Heritage properties and the extent to which they are drawn from local communities.**

		From local communities %	From elsewhere %
6.1.6.1	Men	30 %	47 %
6.1.6.2	Women	70 %	53 %
		Total 100 %	Total 100 %

**6.1.7 - Are available human resources adequate to manage the World Heritage property?**

Human resources **partly meet** the management needs of the World Heritage property

**6.1.8 - Considering the management needs of the World Heritage property, please rate the availability of professionals in the following disciplines**

Conservation	Good
--------------	------

Environmental sustainability	Good
Community participation and inclusion	Fair
Risk preparedness	Good
Capacity development and education	Fair
Administration	Good
Research and monitoring	Good
Awareness raising and public information/communication	Fair
Marketing and promotion	Fair
Interpretation	Fair
Visitor management/tourism	Good
Enforcement (custodians, police)	Not applicable

**6.1.9 - Please rate the availability of training opportunities for the management of the World Heritage property in the following disciplines**

Conservation	Good
Environmental sustainability	Good
Community participation and inclusion	Good
Risk preparedness	Good
Capacity development and education	Good
Administration	Good
Research and monitoring	Good
Awareness raising and public information/communication	Good
Marketing and promotion	Good
Interpretation	Good
Visitor management/tourism	Good
Enforcement (custodians, police)	Not applicable

**6.1.10 - Has any use been made of the World Heritage Strategy for Capacity Building at the property?**

**Some use** has been made of the World Heritage Strategy for Capacity Building

**6.1.11 - If the World Heritage Strategy for Capacity Building has been used, please briefly describe what has been done.**

The Messel Pit non-for-profit Ltd. company has supported aspiring UNESCO World Heritage Sites and aspiring UNESCO Global Geoparks by oral presentations and knowledge transfer across symposia, workshops and seminars e.g. online during the Sars-CoV-19 pandemic in e.g. Mexico, Thailand, Romania.

**6.1.12 - Are there site-specific capacity building plans or programmes that develop local expertise and that contribute to the transfer of skills for the conservation and management of the World Heritage property?**

**A site-based** capacity building plan or programme is in place and fully implemented; **all technical skills are being transferred** to those managing the property locally

**6.1.13 - Comments, conclusions and/or recommendations related to human resources, expertise and training**

**7. Scientific Studies and Research Projects**

**7.1 - Is there adequate knowledge (scientific or traditional) about the values and attributes of the World Heritage property to support planning, management and decision-making to ensure that Outstanding Universal Value is maintained?**

Knowledge about the values and attributes of the World Heritage property is **acceptable** for most key areas but there are gaps

**7.2 - Is there a planned programme of research at the property which is directed towards management needs and/or improving understanding of Outstanding Universal Value?**

There is a **comprehensive, integrated programme** of research, which is relevant to management needs and/or improving understanding of Outstanding Universal Value

**7.3 - Are results from research programmes publicly available and disseminated?**

Research results **are shared** widely **with active outreach** to local communities and national and international audiences

**7.4 - Comments, conclusions and/or recommendations related to scientific studies and research projects**

The scientific research results are published across the web-pages as follows: [www.hlmd.de](http://www.hlmd.de); [www.senckenberg.de](http://www.senckenberg.de); [www.denkmal.hessen.de](http://www.denkmal.hessen.de); - and for the general

## 8. Education, Information and Awareness Building

### 8.1 - Please rate the awareness and understanding of the existence and justification for inscription of the World Heritage property amongst the following groups

Local communities	Good
Local/municipal authorities	Good
Indigenous peoples	Not applicable
Landowners	Good
Women	Not applicable
Youth/children	Good
Researchers	Good
Local visitors	Good
National/international tourists	Fair
Tourism industry	Fair
Local businesses and industries	Fair
NGOs	Fair
Other specific groups	Good
If you selected 'Other specific groups', please describe	Good exchange with UNESCO Global Geopark (UGGp) Bergstraße-Odenwald which is an association, Museum Messel is an association

### 8.2 - Does the property have a heritage education programme(s) for children and/or youth, that can contribute to a better understanding of heritage, promote diversity and foster intercultural dialogue?

There is a **planned and effective education and awareness programme** for children and youth that contributes to the protection of the World Heritage property

### 8.3 - Who are the target audiences for education and awareness programmes at your property?

Women
Youth/children
Researchers
Local Visitors
National/international tourists
Tourism industry
Local businesses and industries
NGOs
Other specific groups
We offer programmes for people with special needs; we participate in the Girl's Day each year to promote women in natural sciences; we offer family programmes and school programmes according to curricula topics and age of children; we offer children's birthday programmes; we offer programmes for elderly people; we too offer events and participate in German wide action days as far as possible;

### 8.4 - Please rate the adequacy of the following visitor facilities and services at the World Heritage property for education, information, interpretation and awareness building

Visitor centre	Good
Site museum	Fair
Information booths	Good
Guided tours	Good
Trails/routes	Good
Printed information materials	Good
Online (website, social media, etc.)	Good
Transportation facilities	Poor

Other	Good
If 'Other' is selected, please specify	Four walking trails around the WHS Messel Pit have been implemented in collaboration with the municipality of Messel and with the UNESCO Global Geopark Bergstraße-Odenwald as well as with the Odenwald Tourism company.

## 8.5 - Comments, conclusions and/or recommendations related to education, information and awareness building

### 9. Visitor Management

#### 9.1 - Please provide estimated annual visitor numbers (including national and international visitors) since the last Periodic Report

15941 / 9897 / 27083 / 30063 / 34432 /

#### 9.2 - What information sources are used to collect visitor statistics?

Entry tickets and registries

#### 9.3 - What is the average length stay of a visitor to the World Heritage property?

One to three hours

#### 9.4 - Please provide the source of information

#### 9.5 - What is the approximate average daily visitor expenditure? (Please provide an estimated monetary figure in USD)

0 / 20 / 0 / 12 / 0 / 1,5 /

#### 9.6 - Please provide the source of information

Lodging, Transportation, Recreation fees: no data available

#### 9.7 - Does the management system/plan for the World Heritage property include a strategy with an action plan to manage visitors, tourism activity and its derived economic, socio-cultural and environmental impacts?

There is a planned and **effective strategy** to manage visitors, tourism activity and its derived impacts on the World Heritage property

#### 9.8 - Please provide any comments relating to the answer provided above in question 9.7

#### 9.9 - Is visitor use effectively managed to maintain the Outstanding Universal Value of the property?

Visitor use of the World Heritage property is **effectively managed** and **does not impact its Outstanding Universal Value**

#### 9.10 - Is the effectiveness of tourism management regularly monitored?

Yes, using a different system

If a different system, please specify

We use an own system fitting the needs at Messel Pit

#### 9.11 - How does the tourism industry cooperate with the site management to improve visitor experiences and maintain the Outstanding Universal Value of the World Heritage property?

There is **good cooperation** between those responsible for the World Heritage property and the tourism industry **to present the Outstanding Universal Value and increase appreciation**

#### 9.12 - How well is the information on the Outstanding Universal Value of the property presented and interpreted?

The Outstanding Universal Value of the property **is adequately presented and interpreted**

#### 9.13 - At how many locations is the World Heritage emblem displayed at the property?

In **many locations** and **easily visible** to visitors

#### 9.14 - How does visitor/tourism revenue (e.g. entry charges, permits) contribute to the management of the World Heritage property?

**Fees are collected** and make a **substantial contribution** to the management of the World Heritage property

#### 9.15 - Are there locally driven sustainable tourism initiatives?

Yes

If 'Yes', please specify

There is a close collaboration on sustainable tourism with the tourism destination association Bergstraße-Odenwald, as well as with the UNESCO Global Geopark Bergstraße-odenwald association plus the Regional Marketing association of the District Darmstadt-Dieburg

#### 9.16 - Are the benefits of tourism shared with local communities?

Yes

If 'Yes', please specify

Yes, with restaurants and by exchange meetings

## 9.17 - Comments, conclusions and/or recommendations related to visitation/tourism/public use of the World Heritage property

### 10. Monitoring

#### 10.1 - Is there a monitoring programme at the property directed towards management needs and/or towards improving the understanding of the Outstanding Universal Value?

There is a **comprehensive, integrated programme of monitoring**, which is relevant to management needs and/or improving understanding of the Outstanding Universal Value

#### 10.2 - Is necessary information available in order to define key indicators for measuring the state of conservation and are they used in monitoring how the Outstanding Universal Value of the property is being maintained?

Information on the values of the World Heritage property is **adequate and key indicators have been defined** for measuring the state of conservation and **are being used in monitoring** of how the Outstanding Universal value of the property is being maintained

#### 10.3 - Are key indicators defined and in place for the following principal aspects of the property?

	Extend of indicators	Not applicable	No indicators	Indicators have been defined but are not yet in use	Indicators are in place and in use since the last Periodic Reporting cycle
10.3.1	State of conservation				✗
10.3.2	Effectiveness of the management system				✗
10.3.3	Character of governance				✗
10.3.4	Appropriate synergy with other conservation designations				✗
10.3.5	Contribution to sustainable development				✗
10.3.6	Capacity development				✗

#### 10.4 - Please provide information on relevant key indicators adopted at the property

#### 10.5 - Please rate the level of involvement in monitoring of the following groups:

World Heritage managers/coordinators and staff	Good
Local/municipal authorities	Not applicable
Local communities	Not applicable
Indigenous peoples	Not applicable
Landowners	Good
Women	Not applicable
Researchers	Good
Tourism industry	Good
Local businesses and industry	Not applicable
NGOs	Good
Other specific groups	Not applicable
If you selected 'Other specific groups', please specify	

#### 10.6 - Has the State Party implemented relevant recommendations arising from the World Heritage Committee?

No relevant Committee recommendations to implement

#### 10.7 - Please provide comments relevant to the implementation of recommendations from the World Heritage Committee.

#### 10.8 - Comments, conclusions and/or recommendations related to Monitoring

### 11. Identification of Priority Management Needs

#### 11.1 - Identification of Priority Management Needs

6.1	Funding	
6.1.3	The available <b>budget is acceptable</b> but <b>could be further improved</b> to fully meet the management needs of the World Heritage property	✗
6.1.7	Human resources <b>partly meet</b> the management needs of the World Heritage property	✗
6.1.10	<b>Some use</b> has been made of the World Heritage Strategy for Capacity Development at the World Heritage property	✗

Please select 0 more issues.

☒ Please save this question to reflect changes

## 12. Summary and Conclusions

### 12.1. Summary - Factors affecting the Property

#### 12.1.1 - Summary - Factors affecting the Property

4.7	Local conditions affecting physical fabric						
4.7.7	Pests	(viii), affected attribute 3.2.4	Reduction of Nutria has started	Regularly observation	2022 until the pest population is adequate.	Senckberg Society for Nature Research	Nutria dig borrows into the oilshale body which is the WHS property. Some fossils may be lost.
4.11	Sudden ecological or geological events						
4.11.5	Erosion and siltation/Deposition	(viii), affected attribute 3.2.2	Measurements on slope stability and hydrogeological situation in the WHS Messel Pit by the Geological Survey of Hesse.	Regular measurements by the Geological Survey of Hesse are realised.	Two times per year measurements are realised.	Geological Survey of Hesse in behalf of the Senckenberg Society for Nature Research	The results give information if further action are necessary or not.

Summary - Factors affecting the Property **completed**

### 12.2. Summary - Management Needs

#### 12.2.1 - Summary - Management Needs

6.1	Funding				
		Actions	Timeframe	Lead agency (and others involved)	More info / comment
6.1.3	The available <b>budget is acceptable</b> but <b>could be further improved</b> to fully meet the management needs of the World Heritage property	The state of Hesse was informed about the needs.	Starting 2023	State of Hesse	From 2023 onwards a higher budget from the state of Hesse is envisaged.
6.1.7	Human resources <b>partly meet</b> the management needs of the World Heritage property	The State of Hesse was informed about the needs.	Starting 2023 more staff is envisaged.	Senckenberg Society for Nature Research and Messel Pit non-for profit ltd. company (Welterbe Grube Messel gGmbH)	See actions
6.1.10	<b>Some use</b> has been made of the World Heritage Strategy for Capacity Development at the World Heritage property	The Welterbe Grube Messel gGmbH has offered support to aspiring WHS, as well as to aspiring UNESCO Global Geoparks and participated in Symposia, Workshops and Seminars on Capacity building activities, since 2020 mainly online (Mexico, Thailand etc.)	The activities started from 2004 onwards and exist until today.	Messel Pit non-for-profit ltd. company (Welterbe Grube Messel gGmbH)	The capacity building activities will be more intensively developed in a new management plan.

Summary - Management Needs **completed**

### 12.3. Conclusions on the State of Conservation of the Property

#### 12.3.1 - Following the analysis undertaken for this report, what is the current state of Authenticity of the World Heritage property?

**Not applicable** (sites inscribed exclusively under criteria vii to x (natural World Heritage properties))

### 12.3.2 - Following the analysis undertaken for this report, what is the current state of Integrity of the World Heritage property?

The Integrity of the World Heritage property is **intact**

### 12.3.3 - Following the analysis undertaken for this report, what is the current state of the World Heritage property's Outstanding Universal Value?

The World Heritage property's Outstanding Universal Value has been **maintained**.

### 12.3.4 - What is the current state of the property's other values?

Other important cultural and/or natural values and the state of conservation of the World Heritage property are **intact**

### 12.3.5 - Comments, conclusions and/or recommendations related to the state of conservation of the property.

## 13. Impact of World Heritage Status

### 13.1 - Please rate the impacts of World Heritage status of the property in relation to the following areas

Conservation	Very positive
Research and monitoring	Very positive
Management effectiveness	Very positive
Quality of life for local communities and indigenous peoples	Positive
Recognition	Very positive
Education	Very positive
Infrastructure development	Very positive
Funding for the property	Positive
International cooperation	Very positive
Political support for conservation	Very positive
Legal/Policy framework	Very positive
Advocacy	Very positive
Institutional coordination	Very positive
Security	Very positive
Gender equality	Very positive
Provision of ecosystem services/ benefits to local communities	Very positive
Social inclusion and equity, and improvement of opportunities for all, irrespective of age, sex, disability, ethnicity, origin, religion, or economic or other status	Very positive
Fostering inclusive local economic development and enhancing livelihood	Very positive
Contributing to conflict prevention, including respect for cultural diversity within and around heritage properties	Very positive
Other	Not applicable
If 'Other', please specify	

### 13.2 - Comments, conclusions and/or recommendations related to World Heritage status and its impacts

## 14. Good Practice in the Implementation of the World Heritage Convention

### 14.1 - Example of good practice in World Heritage protection, identification, conservation or management at the property level

### 14.2 - Define which topics are covered by this example of best practice at the property level

Sustainable Development
Synergies
State of Conservation
Management
Governance
Capacity Building

## 15. Assessment of the Periodic Reporting Exercise

### 15.1. Relevance of Periodic Reporting

#### 15.1.1 - Has the Periodic Reporting process improved the understanding of the following?

The <i>World Heritage Convention</i>
The concept of Outstanding Universal Value
The property's Outstanding Universal Value
The concept of Integrity and/or Authenticity
The property's Integrity and/or Authenticity
Management effectiveness to maintain the Outstanding Universal Value
Monitoring and reporting

#### 15.1.2 - Please rate the follow-up to conclusions and recommendations from previous Periodic Reporting exercise by the following entities

State Party	No follow-up
Site Managers	No follow-up
UNESCO World Heritage Centre	No follow-up
Advisory Bodies (ICOMOS, IUCN, ICCROM)	No follow-up

### 15.2. Use of Data

#### 15.2.1 - How do the authorities in charge of the property plan to use the data recorded from this cycle of Periodic Reporting?

Revision of priorities/strategies/policies for the protection, management and conservation of heritage
Update of management plans
Awareness raising
Advocacy

#### 15.2.2 - Comments on use of data from the Cycle of Periodic Reporting

### 15.3. Timing and resources

#### 15.3.1 - Entities involved in the filling out of this online questionnaire (tick as many boxes as applicable)

Governmental institutions responsible for cultural and natural heritage
Site Manager/Coordinator World Heritage property staff
Focal points of other international conventions/programmes
Non-Governmental Organizations

#### 15.3.2 - Has a gender balanced contribution and participation been considered in the filling out of this questionnaire?

Gender balance is **explicitly considered and effectively implemented** in the process.

#### 15.3.3 - Were you given adequate time (i.e. roughly ten months) to gather necessary information and to fill in this questionnaire?

Yes

#### 15.3.4 - Please estimate the time (working hours) needed to complete this questionnaire

2 / 10 / 24 /
---------------

#### 15.3.5 - Did you mobilise any additional resources to fill out this questionnaire?

	Additional resources	No	Yes
15.3.5.1	Human resources	✗	
15.3.5.2	Financial resources for organizing consultation meetings/ training	✗	

### 15.4. Format and content of the Periodic Report

#### 15.4.1 - How accessible was the information required to complete this questionnaire?

All required information was accessible.

#### 15.4.2 - Was the questionnaire easy to use and clear to understand?

		Very Difficult	Difficult	Easy	Very easy
--	--	----------------	-----------	------	-----------

15.4.2.1	Ease of use of questionnaire		x		
15.4.2.2	Clarity of questions		x		

### 15.4.3 - Please provide suggestions for improvement of the Periodic Reporting questionnaire

A more practical approach would bring more benefit to the periodict report questionnaire of the WHS

## 15.5. Training and Guidance

### 15.5.1 - Please rate the level of support in terms of training and guidance from the following entities in completing this questionnaire

UNESCO World Heritage Centre	Good
UNESCO (other sectors/field offices)	Good
UNESCO National Commission	Not applicable
ICOMOS International	Not applicable
IUCN International	Not applicable
ICCROM international/regional	Not applicable
ICOMOS national/regional	Not applicable
IUCN national/regional	Not applicable

### 15.5.2 - Please rate the level of support for completing the Periodic Reporting questionnaire from the following entities

UNESCO World Heritage Centre	Good
State Party Representative (national Focal Point)	Good
UNESCO other sectors (e.g. field office)	Good
National Commission for UNESCO	Not applicable
ICOMOS International	Not applicable
ICCROM International/regional	Not applicable
ICOMOS national/regional	Not applicable
IUCN national/regional	Not applicable
IUCN International	Not applicable

### 15.5.3 - Were the online training resources prepared by the World Heritage Centre regarding Periodic Reporting adequate for you to complete this questionnaire?

Yes

### 15.5.4 - If you found that the online training resources were not adequate, what changes would you like to see implemented?

## 15.6. Actions that will require formal consideration by the World Heritage Committee

### 15.6.1 - Summary of actions that will require formal consideration by the World Heritage Committee

- **Map(s)**

Reason for update: There is an ongoing map process with the WHC (request 2022).

- **Statement of Outstanding Universal Value for the property as adopted by the World Heritage Committee**

Reason for update: Criterion (vii) is incorrect - correct is: (viii)

Changes to these items will need to go through the proper processes.

## 15.7. Comments, conclusions and/or recommendations related to the Assessment of the Periodic Reporting Exercise

### 15.7.1 - Comments, conclusions and/or recommendations related to the Assessment of the Periodic Reporting Exercise

### 15.7.2 - Thank you for having filled in all the questions. Please contact your National Focal Point for validation.