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# Caves and Ice Age Art in the Swabian Jura (Germany)

## No 1527

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### Official name as proposed by the State Party

Caves and Ice Age Art in the Swabian Jura

### Location

Districts of Alb-Donau and Heidenheim  
Federal State of Baden-Württemberg  
Germany

### Brief description

Modern humans first arrived in Europe 43,000 years ago during the last ice age. One of the areas where they took up residence was the Swabian Jura in southern Germany. Excavated from the 1860s up to the present day, six caves, located only a few kilometres away from each other, have revealed layers of the Aurignacian period, dating from 43,000 to 33,000 years ago. Among the items found at these sites are carved figurines, musical instruments and items of personal adornment. The figurines depict species of animals who lived in that ice age environment - cave lions, mammoths, birds, horses, cattle and fish. Other figurines depict creatures that are half animal, half human and there is one statuette of a female form.

### Category of property

In terms of categories of cultural property set out in Article I of the 1972 World Heritage Convention, this is a serial nomination of two *sites*.

## 1 Basic data

### Included in the Tentative List

15 January 2015

### International Assistance from the World Heritage Fund for preparing the Nomination

None

### Date received by the World Heritage Centre

13 January 2016

### Background

This is a new nomination.

### Consultations

ICOMOS has consulted its International Scientific Committee on Archaeological Heritage Management and several independent experts.

### Technical Evaluation Mission

An ICOMOS technical evaluation mission visited the property from 30 August to 2 September 2016.

### Additional information received by ICOMOS

On 22 August 2016, the State Party sent a letter to ICOMOS describing potential development projects in the area surrounding the nominated property and the buffer zone.

On 27 September 2016, ICOMOS sent a letter requesting additional information regarding these proposed developments, their potential effects and approval processes. The State Party answered on 20 October 2016 and this additional information has been incorporated into the relevant sections below.

On 19 December 2016, a further letter was sent to the State Party as an interim report from ICOMOS containing requests for evidence for manufacture of ivory figurines and adornments within the caves, an update on proposed wind power developments, a discussion of tourism management and a different name for the property. The State Party answered on 23 February 2017. This additional information has been incorporated into the relevant sections below.

### Date of ICOMOS approval of this report

10 March 2017

## 2 The property

### Description of the Serial Nomination

The serial nominated property comprises two components, each component including three caves. The first component part is 271.7 ha and its buffer zone of 766.8 ha; the second component part is 190.4 ha and 391.9 for its buffer zone. The total nominated area is 462.1 ha, and 1158.7 for the buffer zone.

#### Ach Valley (component 1)

This component is composed by 3 km of valley floor and the sloping sides of the valley up to the edge of the adjacent tableland. The Ach River has a wide valley floor, up to 500 m across, and the valley's sides rise 130 m to the surrounding uplands. The setting of the Ach valley is primarily rural with farms in the valley floors and forests on the valley slopes. There are roads and utilities that cross the property and a railway line. This component gathers three caves, which are Geißenklösterle, Sirgenstein and Hohle Fels.

Geißenklösterle is the westernmost cave in this component. The opening faces west and the main dome of the original cave has collapsed. Excavations have taken place in a bay to the side of the dome and a passage still filled with sediment branches off this bay. It is estimated that a large proportion of the archaeological deposits in this cave remain intact and unexcavated. Deposits in Geißenklösterle range in age from the Middle Palaeolithic (Mousterian) to the Mesolithic. Finds from the Aurignacian layers include animal figurines carved from mammoth ivory, pendants of mammoth ivory and animal teeth and three flutes made from ivory and bird bones. These objects range in age from 41,000 to 35,000 years ago.

Sirgenstein Cave has its entrance part way up from the valley floor. A narrow entrance leads to a long high-domed passage. Excavations took place in the early 20<sup>th</sup> century, the original extent of archaeological deposits is not known but it is thought that some undisturbed sediments still exist. Deposits in Sirgenstein Cave range in age from the Mousterian to medieval times. Finds from the Aurignacian layers include ornamental beads made from mammoth ivory dated to between 35,000 and 39,000 years ago.

Hohle Fels is the easternmost cave in the Ach valley. From the entrance, a 20 m long corridor opens into a very large cavern, roughly 25 m wide, 30 m long and 30 m high. Excavations have taken place in the corridor and the portion of the main cavern closest to the entrance. It is likely that large areas of undisturbed sediments still exist in the cavern. Deposits from Hohle Fels range in age from the Middle Palaeolithic to recent times. Finds from the Aurignacian layers include mammoth ivory figurines of animals, one small human statuette - the "small lion man" - and one female statuette - the "Venus of Hohle Fels." The Aurignacian layers date to between 43,000 and 32,000 years old.

#### Lone River (component 2)

This component is located in the valley of the Lone River. It includes 3 km of valley floor and the sloping sides of the valley up to the edge of the adjacent tableland. The Lone valley is narrower than the Ach, its floor is less than 200 m wide for most its length in this component, widening out to 500 m in places. The valley slopes rise 30 m to the surrounding uplands. The setting of the Lone valley is rural with farm fields in the valley floor and forests on the valley slopes. There are roads and utilities that cross the property. The caves in this component are Bockstein, Hohlenstein Stadel and Vogelherd; and the Vogelherd Archäopark interpretative centre is also included in this component.

Vogelherd Cave is the easternmost cave in this component. Originally, it had three entrances with corridors through the rock that connected them. It has been fully excavated and no undisturbed deposits are left. The backdirt from the 1930s excavations has been recently re-excavated with modern methods, adding to the finds from this cave. Deposits from Vogelherd Cave range from the Middle Palaeolithic to the Neolithic. Finds include the largest collection of animal figurines from any of the caves in this region, most carved from mammoth ivory with one from a horse patella. Many different ice age animals are represented, cave lions, mammoths, wild cattle, wild horses, water fowl and fish. One anthropomorphic figurine has been recovered, pieces of two flutes and several beads and pendants of mammoth ivory. Radiocarbon dates from Vogelherd Cave range from 40,600 to 35,000 years ago.

Hohlenstein Stadel Cave is also part of a cave/rockshelter complex. Its entrance faces north and the cave is narrow but deep, extending 50 m into the rockface with small side bays and passages. Some undisturbed deposits are thought to still exist in front of the cave and in the interior. Deposits from Hohlenstein Stadel Cave range from the Mousterian of the Middle Palaeolithic to the Magdalenian

period. Finds include the figurine called the "Lion Man", carved from mammoth ivory. The Aurignacian layers at Stadel Cave date from 42,000 to 35,000 years ago.

Bockstein Cave is the westernmost cave in this component. It is part of a complex of caves and rockshelters on the Bockstein massif. This cave is 16 m deep and 9 m wide. An artificial entrance was enlarged in the 1880s and the original entrance, filled with sediment, was discovered and excavated in the 1950s. This entrance is called Bocksteintörle and it may still contain undisturbed deposits. The main Bockstein Cave has been completely excavated. Deposits from Bocksteintörle range from the Middle Palaeolithic to Neolithic periods. Finds include stone and ivory pendants, but no figurines. The Aurignacian layers date from 36,000 to 34,000 years ago.

ICOMOS notes that in places, the nomination dossier uses confused wording or makes inaccurate statements. In several parts of the dossier, descriptions or comparisons are made which mix chronological periods, archaeological cultures and taxonomy, for example on page 33, "While the topmost layers contained finds from the Middle Ages and the Metal Ages, the lower horizons yielded finds which date back to the Aurignacian and the time of Neanderthal man." There are a series of speculations about religious significance associated with the 'Lion Man' figurine from Hohenstein Stadel Cave and the other animal figurines. Pending future research, suggestions about religious behavior at the caves are unsubstantiated.

#### History and development

The rocks of the Swabian Jura were formed 200 million years ago and are largely calcareous. This has allowed karst topography to develop as acidic rainwater seeped into the ground, dissolving the rock and forming water systems that ran underground. Eventually the water found a new path down through the rock and the passages drained, becoming dry caves. Where these caves intersect modern valleys, the erosion and downcutting of surface rivers has cut through the rock passages, giving access to them from the surface. Once an opening was formed, sediment could be deposited and the cave began to fill. If a cave was inhabited by animals or humans, the materials they brought into the cave were added to the sediment deposits.

This has happened in both the Ach and Lone valleys where the cave entrances are found in the valley slopes and the caves themselves have layers of soils deposited through the ages that contain archaeological materials. Although there is a great range of time represented in these caves, the focus of the nomination is on those deposits in the six caves from the Aurignacian period.

The Aurignacian tradition in Europe dates from 43,000 to 33,000 years ago and features several distinctive stone tool forms such as flint blades and bladelets and the specialized cores used to make them. There is also evidence for symbolic communication in the form of carved beads, decorative pendants and portable or parietal (i.e. made on a rock face) figurative art.

Over 30 separate excavation projects have taken place at the six caves, some projects have lasted for many years. Investigation of the caves began in 1861 at Hohlenstein Stadel Cave with a search for cave bear bones. A few years later, the archaeological deposits were recognized for what they were and new excavations began at Hohle Fels in 1871 and at Bockstein Cave in 1879. In the early 20th century excavations took place at Sirgenstein, Vogelherd, Bockstein, and Hohlenstein Stadel Caves. In the late 20<sup>th</sup> century excavations took place at Geißenklösterle and Hohle Fels. Since 2000, more work has taken place at Geißenklösterle Hohle Fels, Vogelherd and Hohlenstein Stadel Caves, although Hohle Fels is the only cave with a current program of excavation.

### 3 Justification for inscription, integrity and authenticity

#### Comparative analysis

The State Party uses the UNESCO study of 2010, titled *Human Evolution: adaptations, dispersals and social development* (HEADS), as a reference point to frame the comparative analysis.

Comparisons are made with palaeolithic properties without art on the World Heritage List and on Tentative Lists. These sites, such as the Lake Turkana National Parks in Kenya (1997, extension in 2001, criteria (viii) and (x)) or Emergence of Modern Humans in South Africa (Tentative list), provide direct evidence of the stages of human evolution. Some also feature stone tools. In contrast, the caves in the nominated property do not feature Aurignacian era human fossils, but do have stone tools and other works by humans including works of figurative art and musical instruments.

Another category of comparison is with properties on the World Heritage List and on Tentative Lists with palaeolithic engravings, paintings in caves or on rock faces. Of these, only the Decorated Cave of Pont d'Arc, known as Grotte Chauvet-Pont d'Arc, Ardèche in France (2014, criteria (i) and (iii)) dates to the Aurignacian period from 37,000 to 33,000 years ago. Thus, the oldest paintings on the walls of Chauvet Cave are not as old as the oldest figurine from the nominated property.

Comparisons are made with other sites with similar cultural background that are not inscribed nor on Tentative Lists. There are other Aurignacian sites in Europe with stylized engravings, some of which are identifiable as animal or human in form, some not. Some sites have abstract symbols, such as El Castillo in Spain and Grotta di Fumane in Italy that are equivalent in age, or even possibly older than the sites in the nominated property. A female figure interpreted as a dancer has been found at Stratzing in Austria which dates from 36,000 to 34,000 years ago. None of these comparative sites have the quantity of art objects, variety of forms represented, nor the same degree of realism in their art objects as at the nominated property.

Caves and Ice Age Art in the Swabian Jura feature naturalistic figurines that represent the animals of the local environment and the oldest female figurine, the oldest therianthrope (half human, half animal) figurines and the oldest musical instruments yet found in the world. More flutes have been found at these caves than anywhere else. The portable art is found in greater numbers and a wider variety of forms than at any other place with Aurignacian archaeology.

ICOMOS notes that more attention could have been given to the significance of the much older engraved patterns on ochre and ostrich eggshell at Blombos (more than 70,000 years ago) and Diepkloof (around 60,000 years ago) in South Africa. While these patterns are not figurative art, their significance has been under-valued. For example, two pieces of ochre have been found at Blombos with the same engraved crosshatched design with horizontal scribing, and some elements of that design appear on the Aurignacian lion figurine from Vogelherd Cave.

ICOMOS notes that each of the two components contributes features relevant to the comparative analysis.

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ICOMOS considers that the comparative analysis justifies consideration of this serial property for the World Heritage List.

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#### Justification of Outstanding Universal Value

The nominated property is considered by the State Party to be of Outstanding Universal Value as a cultural property for the following reasons:

- It represents a unique concentration of archaeological sites with some of the oldest figurative art and some of the oldest musical instruments worldwide;
- Together with the artefacts and the surrounding landscape, they form an outstanding early cultural ensemble that helps to illuminate the origins of human artistic development and spiritual/religious cognition and behaviour;
- The long and highly productive tradition of research at these sites has had a significant influence on the understanding of the Upper Palaeolithic in Central Europe; and
- The caves were places where this art was made and used, and where these musical instruments were made and played.

The State Party argues that even if in the future older finds are made elsewhere, the nominated property will undoubtedly remain a uniquely outstanding and comprehensive record of the creative capabilities amongst humans in the Palaeolithic of Europe.

ICOMOS concurs with this view, and therefore considers that the justification is appropriate.

Moreover, ICOMOS considers that a serial nomination is appropriate because the figurines and musical instruments have been found in caves in each of the components. Omitting one of the components would omit significant examples of musical instruments or portable art.

ICOMOS notes that while two of the caves have not produced figurines, these were excavated before modern archaeological methods were adopted and any fragments of figurines that may have been present may not have been recovered at that time. Carved pendants and items of personal adornment as well as significant Aurignacian deposits have been found at all six of the caves included in this series.

ICOMOS notes that the nomination dossier did not provide evidence to substantiate the claims that the caves were workshops (“ateliers”) where the figurines and objects of adornment were made. The additional information received from the State Party in February 2017 indicated that in the caves that were excavated with modern methods (i.e. water screening), many thousands of chips and splinters of ivory were recovered as well as pieces that show the all of the stages of bead production. In the Hohle Fels cave, a preform of a flute was found. Thus, there is direct evidence for the manufacture of beads and a musical instrument in the caves and indirect evidence for the carving of figurines.

### **Integrity and authenticity**

#### **Integrity**

The nominated property includes all six caves in the region that have had excavations of significant Aurignacian deposits, including the four caves containing figurative art objects and musical instruments, and their landscape setting.

ICOMOS notes that the quarry in the buffer zone near Schelklingen is not visible from any of the caves.

The State Party proactively notified ICOMOS in August 2016 of two proposed wind power developments near the Lone Valley component of the property that could affect the visual integrity of the property. The additional information received in February 2017 indicates that one of the developments (Öllingen-Setzingen) has been rejected by the responsible authority, the district administration of Alb-Donau-Kries on 1 February 2017. While a decision on the second development (Teichhau I + II) has not yet been made, the State Office for Cultural Heritage Baden-Württemberg has made the same objections as it had to the first development. The State Office expects that the second development will also be rejected.

ICOMOS supports the non-approval of the Öllingen-Setzingen wind power development and recommends that the Teichhau I + II development also be non-approved by the responsible authority. In addition, any new development projects near the property should be

subjected to Heritage Impact Assessments and should be submitted to the World Heritage Committee for consideration in accordance with paragraph 172 of the *Operational Guidelines*.

ICOMOS considers that all elements necessary to express the values of the property are included in the nominated boundary; and that the nominated area includes sufficient consideration of the setting of the caves in relation to the topography and vegetation of the Lone and Ach valleys, including the limestone cliffs, valley floors and adjacent uplands.

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ICOMOS considers that the integrity of the whole series has been justified; and that the integrity of the individual sites that comprise the series has been demonstrated.

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#### **Authenticity**

The authenticity of the nominated property is supported by the presence of stratified geological deposits in the caves that have served to protect the archaeological layers until their excavation, and the surrounding landforms that contain the caves.

Systematic archaeological research has been undertaken on these sites for more than a century and documentation is ongoing. The archaeological evidence gained from these excavations underpins the authenticity of the nominated property. Several caves have unexcavated deposits and there are other caves within the property that have not yet been investigated, providing the basis for future research. The current research plan includes only the ongoing excavations at Hohle Fels and test excavations at Sirgenstein Cave.

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ICOMOS considers that the authenticity of the whole series has been justified; and that the authenticity of the individual sites that comprise the series has been demonstrated.

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ICOMOS considers that the conditions of integrity and authenticity of the whole series have been justified; and for individual sites, the conditions of integrity and authenticity have been met.

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### **Criteria under which inscription is proposed**

The property is nominated on the basis of cultural criteria (i) and (iii).

Criterion (i): *represent a masterpiece of human creative genius;*

This criterion is justified by the State Party on the grounds that the caves and their surroundings were the habitat of early modern *Homo sapiens*, and represent the places where early art and musical instruments were made and used. The figurative art objects and musical instruments are among the oldest found anywhere in the world.

ICOMOS considers that a distinction exists between the objects of art and the places where they were found. While the portable art objects and musical instruments

can be said to be masterpieces, the same cannot be said of the caves where they were found. The nominated property provides an exceptional testimony to the origins of art and music among humans, but that does not mean that the caves themselves are masterpieces. In this sense, Caves and Ice Age Art in the Swabian Jura are different from other inscribed properties that have paintings or engravings on their walls, where the art is an integral part of the place. As well, arguments related to the origins of religious or spiritual behavior are not well developed and this aspect is not considered to be part of the Outstanding Universal Value of the property.

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ICOMOS considers that this criterion has not been justified.

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Criterion (iii): *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization, which is living or which has disappeared;*

This criterion is justified by the State Party on the grounds that the deposits in the caves have preserved cultural remains from the Aurignacian period, including the figurines and musical instruments. The landscape, caves and finds represent a unique and exceptional example of an early cultural tradition and an extinct culture.

ICOMOS considers that the nominated property provides an exceptional testimony to the culture of the first modern humans to settle in Europe north of the Alps. One exceptional aspect of this culture that has been preserved are examples of carved figurines, objects of personal adornment and musical instruments. The art objects are among the oldest yet to be found in the world and the musical instruments are the oldest that have been found to date worldwide.

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ICOMOS considers that this criterion has been justified.

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ICOMOS considers that the serial approach is justified and ICOMOS considers that the selection of sites is appropriate.

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ICOMOS considers that the nominated property meets criterion (iii) only and the conditions of authenticity and integrity.

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#### **Description of the attributes**

The attributes of the property are the remarkable cluster of caves in this part of the Swabia Jura that provide evidence of modern human settlement (Geißenklösterle, Sirgenstein, Hohle Fels, Vogelherd, Bockstein and Hohlenstein Stadel caves) and the landscape setting of these caves. The artefacts and excavated materials housed in the Archäologisches Landesmuseum Baden-Württemberg (Stuttgart), Urgeschichtliches Museum (Blaubeuren), Ulmer Museum (Ulm), Museum Universität Tübingen, and Archäopark Vogelherd (Niederstotzingen) are also associated with the values of the nominated property.

## **4 Factors affecting the property**

Development pressures include proposals to erect wind power generators in the vicinity of the valleys that would affect the viewshed from the property. A proposed addition to a cement factory south of the Ach valley component would have a high chimney that may also affect viewsheds from caves in that valley.

In the Ach valley, there may be development pressure from the towns at either end of the property and from expansion of the infrastructure (roads, rail) that services these towns. A new train station may be built at the edge of the property.

Construction of additional visitor infrastructure (an information centre with accessible washrooms) is also planned for the Ach valley, which may affect the attributes of the property.

Potential threats also exist from mining, karst processes, earthquakes, flooding and forest fires.

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ICOMOS considers that the main threats to the property are visual impacts from nearby development, especially wind power installations. Current and future wind power proposals will have to be followed closely by the managers of the property. While visitor pressure is not a current threat, it is likely that visitation will increase and will need monitoring.

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## **5 Protection, conservation and management**

### **Boundaries of the nominated property and buffer zone**

The boundaries of the two components of the nominated property follow natural topographical features (contour lines and ridgetops) and human-created features on the modern landscape (streets and paths). Some arbitrary boundary lines connect these other features.

The buffer zone includes the immediate setting of the nominated property. The boundaries of the buffer zone are clearly delineated.

The buffer zone for the Ach valley component includes urban portions of the towns of Blaubeuren and Schelklingen at either end of the component, as well as nearby uplands and side valleys. Other than the urban areas, most of the buffer zone is rural and forested, except for one quarry beside Schelklingen and a pharmaceutical factory at the south edge of Blaubeuren. ICOMOS notes that the quarry in the buffer zone near Schelklingen is not visible from any of the caves.

The buffer zone for the Lone valley component includes portions of the valley floor at either end of the component, as well as nearby uplands. It is rural and mostly forested with a few farm fields. There are no residents in the Lone valley component or its buffer zone.

ICOMOS notes that other caves have been found with archaeological deposits within the proposed boundaries, but these have not yet been investigated or have not yielded any examples of Aurignacian art or personal adornment.

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ICOMOS considers that the boundaries of the nominated property and of its buffer zone are adequate.

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### **Ownership**

Ownership of the proposed property is split between the Federal Republic of Germany, the Federal State of Baden-Württemberg, municipalities and private landowners. The intention is to increase the amount of land in public hands by purchasing private land surrounding Sirgenstein cave and private land near Hohlenstein Stadel cave.

### **Protection**

In the Federal Republic of Germany, the responsibility for the care and preservation of cultural monuments is assigned to the individual states. The nominated property is located in the State of Baden-Württemberg. Therefore, the Cultural Heritage Protection Act of Baden-Württemberg (1972) is the main legal enforcement to ensure the protection of the state's cultural heritage. All of the property and buffer zone is covered by this act.

As well, an intertwining network of accompanying legal enforcements has been implemented. ICOMOS regards the legal protection as effective at the highest possible level.

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ICOMOS considers that the legal protection in place is adequate.

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### **Conservation**

Comprehensive monitoring of the caves and the surrounding landscape started in 2014. The caves and their entrance areas have been recorded by three-dimensional documentation methods (laser scanning and photogrammetry). 3D documentation of each cave is planned to be repeated at regular intervals (5–10 years). Each cave is also annually monitored by conventional photographic documentation.

On a larger scale, the landscape around the caves (which constitutes the entire property and the buffer zone) is documented by aerial photography every 3 to 5 years.

Metal grilles have been installed to protect areas with original sediments at Geißenklösterle, in Hohle Fels and in Hohlenstein Stadel Cave. Where original sediments are still present beside former excavation units, physical protection is provided by stone packing (at Geißenklösterle and Hohlenstein) or sandbags (at Hohle Fels).

Currently, ongoing excavations are taking place only at Hohle Fels.

All conservation measures function within a strategy of protecting the caves and the landscape and at the same time keeping them at least partly open to the public.

ICOMOS recommends that the balance between knowledge gained from excavation and conservation of the deposits in the property must be kept in the future.

All parts of the property are well-maintained and the condition and visual integrity of the nominated property and its significant features are good, supported by an active conservation program set out in the management plan.

ICOMOS notes that the steep path leading up to Bockstein cave is difficult to access in wet weather. This area should be remediated to provide easier access.

ICOMOS notes that the backdirt from the early excavations at Sirgenstein and Bockstein caves is of potential significance. Vogelherd cave was also the scene of early excavations and recent re-excavation of its backdirt has produced more finds including fragments of Aurignacian figurines. The backdirt from Sirgenstein and Bockstein caves may have the same research potential. It should be protected, monitored and considered for future research.

ICOMOS recommends that the development of a unified documentation database be prioritized that includes data on the sites, the finds and information for all excavations.

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ICOMOS considers that the state of conservation of the property is satisfactory.

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### **Management**

Management structures and processes, including traditional management processes

The property is administrated by the Ministry of Finance and Economics Baden-Württemberg as the supreme monument protection authority, by Department 21 – Regional Planning, Construction Law and Cultural Heritage in the Regional Administrative Council of Stuttgart – as the senior monument protection authority; by the State Office for Cultural Heritage in the Regional Administrative Council of Stuttgart as the responsible state wide expert authority; and the lower monument protection authorities (Municipal Administration Herbrechtingen, the District Administration Heidenheim, Administrative Cooperation Langenau and the District Administration Alb-Donau District).

The officials make decisions regarding protective measures and implement them through legal provisions within administrative processes. They authorise and supervise conservation measures and current research projects within the property; promote documentation and publication of the findings; and support the scientific collaboration of various institutions.

Policy framework: management plans and arrangements, including visitor management and presentation

The management plan for the nominated property was prepared in mutual agreement of all representatives of the townships and municipalities, the District of Heidenheim and the Alb-Donau District, the Ministry of Finance and Economics Baden-Württemberg, the State Office for Cultural Heritage, the University of Tübingen, the regional museums and information centres, the local associations that are related to the sites or prehistoric archaeology, as well as other stakeholders with scientific, tourism, communal and communicational tasks and interests.

The management plan strikes a balance between conservation, research, tourism and the demands of all those who live and work in the area of the nominated property. It applies equally to both components of the property and actions are described up to the year 2020. Activities in the plan address the domains of coordination, credibility, conservation, capacity building, cooperation, communication and communities.

The State Party describes a total budget for personnel at the State Office for Cultural Heritage of approximately €6,180,000 in 2015. A dedicated manager for this property has been appointed and several staff who also serve two other World Heritage properties in Baden-Württemberg. In addition, there is an expenditure of approximately €565,000 for research conducted by the University of Tübingen and the State Office for Cultural Heritage between 2013 and 2015. An additional €1,000,000 will be spent by both the state and the municipalities for public relations work and the extension of the existing visitor information system.

ICOMOS notes that the management plan was in place at the time of the nomination; and considers that it provides a stable basis for the development of an effective management system. A number of measures listed in the management plan have already been initiated or realised. The excellent balance between research and conservation is noteworthy. The existing visitor facilities are a good basis for the further development of a visitor guidance and information system.

Risks from natural disasters including flood, fire, and earthquakes are considered in the management plan.

Visitor facilities, visitor management, and presentation of information to the public are included in the management plan.

Additional information provided by the State Party in February 2017 describes the visitor information system, noted above, that is being put into place to provide barrier-free information about the property to the public and promote a gentle sustainable tourism. A goal of visitor management is to distribute tourists across the property and within the surrounding region so that no one part of the property is overwhelmed. Hiking trails are planned

across the property with information signs and activity stops in areas between the caves. An additional information point is planned near Hohle Fels in the Ach valley component. The Urgeschichtliches Museum in Blaubeuren and Archäopark Vogelherd are the primary visitor facilities. Each currently sees an annual attendance of 30,000 to 40,000 people and neither is near its maximum capacity. Museums in Stuttgart, Ulm and Tübingen also display artifacts from the property and serve to further disperse the visitor load. If regular monitoring shows an impact from increased visitation, the State Office for Cultural Heritage is prepared to take action to mitigate the effects.

Involvement of local communities

ICOMOS notes that there is wide support for the nomination from the local communities. There are several local associations in the regions of both component parts that are involved and supportive. A large number of volunteers support these associations, reflecting the appreciation of the cultural heritage by the local population. Tourism marketing stakeholders play an active part in the development of sustainable tourism strategies, and are involved in the management system.

ICOMOS concludes that the management system provides a good basis for the conservation and effective protection for the archaeological remains.

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ICOMOS considers that the management system for the serial property is adequate.

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## 6 Monitoring

Key indicators for monitoring include the stability of the cave ceilings and cave walls, the state of erosion of sediments in and around the caves, the state of preservation of archaeological sites in the region, population development, and change of use of areas used for agriculture and forestry to areas of settlement and commerce. Surveys of these indicators will take place annually, every 5 or 10 years, depending on the indicator.

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ICOMOS considers that the monitoring system for the property is adequate.

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## 7 Conclusions

The Caves and Ice Age Art in the Swabian Jura have preserved archaeological deposits with cultural remains from the Aurignacian period, including figurines, objects of personal adornment and musical instruments. The landscape, caves and finds represent a unique and exceptional example of an early cultural tradition and an extinct culture. ICOMOS considers that the comparative analysis justifies consideration of this property for the World Heritage List; that the nominated property meets criterion (iii) and the conditions of integrity and

authenticity. The serial approach is justified and the selection of sites is appropriate.

ICOMOS considers that the main threats to the property are visual impacts from nearby development, especially by wind power installations. Current and future wind power proposals will have to be followed closely by the managers of the property. While visitor pressure is not a current threat, it is likely that visitation will increase and will need monitoring.

The boundaries of the nominated property and of its buffer zone are adequate. The legal protection in place and the state of conservation of the property are satisfactory. The resources devoted by the State Party are satisfactory to ensure the best possible management of the sites, including protection, conservation, research and public outreach. The management system for the overall serial property and the monitoring system for the property are adequate.

In the additional information received in February 2017, the State Party, at ICOMOS's request, suggests that the name of property could be changed from "Caves with the oldest Ice Age art" to "Caves and Ice Age Art in the Swabian Jura," which would avoid use of the superlative "oldest."

## 8 Recommendations

### Recommendations with respect to inscription

ICOMOS recommends that the Caves and Ice Age Art in the Swabian Jura, Germany, be inscribed on the World Heritage List on the basis of **criterion (iii)**.

### Recommended Statement of Outstanding Universal Value

#### Brief synthesis

Modern humans first arrived in Europe 43,000 years ago during the last ice age. One of the areas where they took up residence was the Swabian Jura in southern Germany. Here, ancient peoples lived in and among a series of caves which are now archaeological sites. Excavated from the 1860s up to the present day, these six caves have revealed a long record of human presence and an earlier Neanderthal presence before that. The focus of this property are the caves with Aurignacian layers, which date from 43,000 to 33,000 years ago. Among the items found at these sites are carved figurines, musical instruments and items of personal adornment. The figurines depict species of animals who lived in that ice age environment – cave lions, mammoths, birds, horses, cattle and fish. Other figurines depict creatures that are half animal, half human and there is one statuette of a female form.

Caves and Ice Age Art in the Swabian Jura represents a unique concentration of archaeological sites with some of the oldest figurative art and the oldest musical instruments yet to be found worldwide. Together with the

artefacts and the surrounding landscape, they form an outstanding early cultural ensemble that helps to illuminate the origins of human artistic development. The long and highly productive tradition of research at these sites has had a significant influence on the understanding of the Upper Palaeolithic in Europe.

**Criterion (iii):** Caves and Ice Age Art in the Swabian Jura provides an exceptional testimony to the culture of the first modern humans to settle in Europe. Exceptional aspects of this culture that have been preserved in these caves are examples of carved figurines, objects of personal adornment and musical instruments. The art objects are among the oldest yet to be found in the world and the musical instruments are the oldest that have been found to date worldwide.

#### Integrity

The property includes all six caves in the region that have had excavations of significant Aurignacian deposits, including the four caves containing figurative art objects and musical instruments and their landscape setting. All the elements necessary to express the values of the property are included in the property boundaries. The property includes sufficient consideration of the setting of the caves in relation to the topography and vegetation of the Lone and Ach valleys, including the limestone cliffs, valley floors and adjacent uplands.

#### Authenticity

The authenticity of the property is supported by the presence of stratified geological deposits in the caves that have served to protect the archaeological layers until their excavation and the surrounding landforms that contain the caves. Systematic archaeological research has been undertaken at these sites for more than a century and documentation is ongoing. The archaeological evidence gained from these excavations underpins the authenticity of the property. Several caves have unexcavated deposits and there are other caves within the property that have not yet been investigated, providing the basis for future research.

#### Management and protection requirements

The Cultural Heritage Protection Act of Baden-Württemberg (1972) is the main legal enforcement to ensure the protection of the property. The property is administrated by the Ministry of Finance and Economics Baden-Württemberg and other branches of state, regional and municipal governments. A dedicated manager has been appointed to oversee the property. A management plan and monitoring system is in place. Activities in the plan address the domains of coordination, credibility, conservation, capacity building, cooperation, communication and communities. The managers of the property should continue to ensure and maintain a balance between knowledge from excavation and conservation of the archaeological deposits. A documentation database should be developed to include

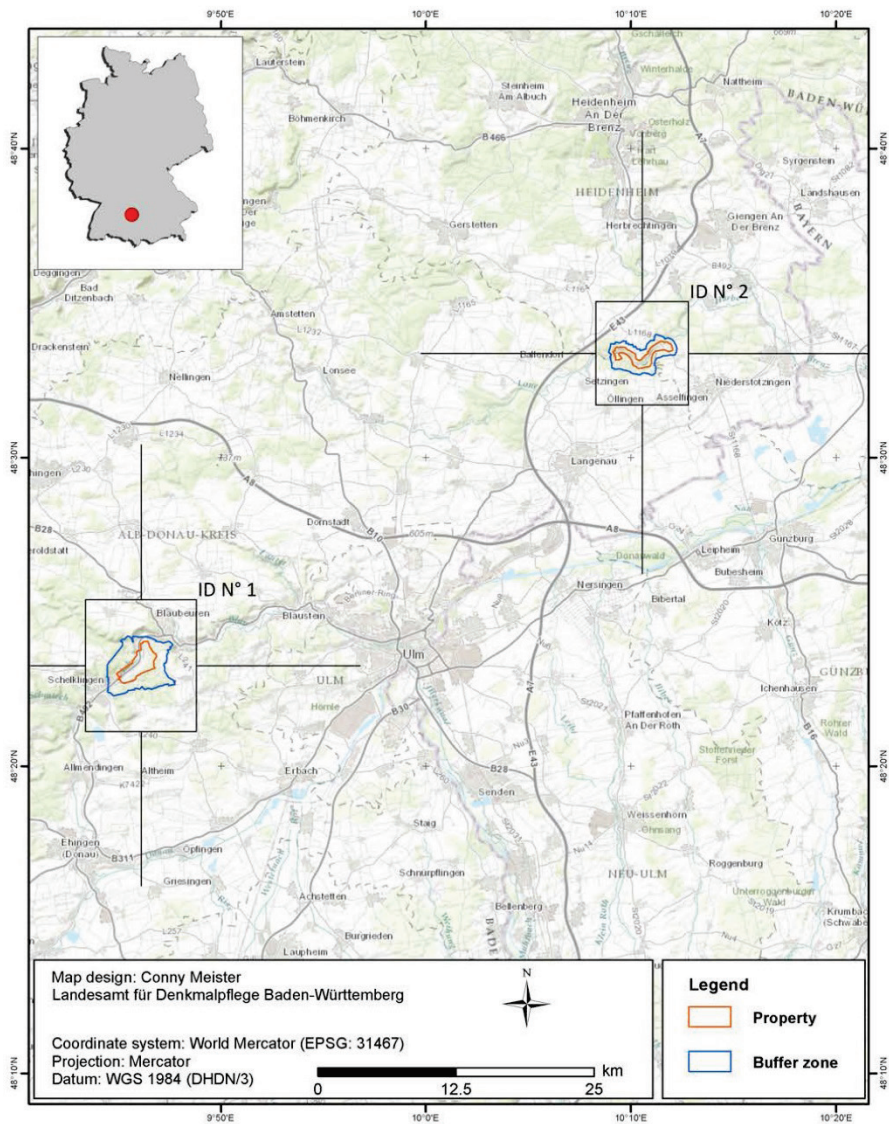


data on the caves, the finds and all excavations that have taken place.

**Additional recommendations**

ICOMOS recommends that the State Party give consideration to the following:

- a) Ensuring and maintaining a balance between knowledge from excavation and conservation of the deposits in the property,
- b) Improving the steep path leading up to Bockstein cave as it is difficult to access in wet weather. This area should be remediated to provide easier access,
- c) Ensuring the protection and monitoring, and consider the future research potential of the backdirt from the early excavations at Sirgenstein and Bockstein caves (these might have a similar research potential as the recently re-excavated backdirt of Vogelherd cave),
- d) Developing a documentation database that includes data on the sites, the finds and information for all excavations,
- e) Non approving the Teichhau I + II wind power development. In addition, any new development projects near the property should be subjected to Heritage Impact Assessments and should be submitted to the World Heritage Committee for consideration in accordance with paragraph 172 of the *Operational Guidelines*;



Map showing the boundaries of the nominated properties



View of the rock formation Bruckfels with the Geißenklösterle



Southwest entrance of Vogelherd Cave



The 'Lion Man' figurine from Hohlenstein Stadel Cave



Fragment of bone flute