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Nature meets aesthetics on cultural grounds: a multidisciplinary study of grave mounds in Norway

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Abstract

Grave mounds are landscape features of interest and value for various scientific fields. Their informational value for archaeologists is indisputable, their visual as well as cultural features are emphasized by landscape ecologists and landscape architects, and biologists have found them to be rich in biodiversity. How the different values are intertwined and how they could be integrated in the management of grave mounds has received little attention. The multiple values of grave mounds and their possible integration in grave-mound management is the focus of the study described in this paper. The paper discusses how the different aspects of grave mounds can be combined in a multidisciplinary study combining cultural, visual and biodiversity aspects and values, which are traditionally approached from different academic

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disciplines. The advantages and challenges of the multidisciplinary approach are discussed. The study aims at contributing to the development of landscape management tools able to encompass the complex characteristics and values of grave mounds in Norway.

Keywords: multidisciplinary; landscape management; cultural elements; vegetation; biodiversity

Introduction

Cultural elements and cultural environments are important components of landscapes, valuable as sources of knowledge and experience and for utilitarian services (Riksantikvaren 2000; 2004). The grounds for protecting cultural elements and environments identified by Riksantikvaren (the Norwegian Directorate for Cultural Heritage) are their ability to awaken curiosity and eagerness to learn, the variation and contrast they add to our environment, their beauty and their value as a source of prosperity and joy. Riksantikvaren also emphasizes the importance of cultural elements and environments as expressions of the continuous change of the environment, culture and human use of nature through time. Cultural elements provide modern people with historic anchorage, giving perspective, knowledge and the sense of being part of a larger whole (Riksantikvaren 2000; Miljøverndepartementet 2002).

For this integrative study I have chosen Norwegian grave mounds as cultural elements for the investigation. Grave mounds were chosen not only for their cultural importance, but for being interesting meeting points between different academic disciplines. The focus of the study is the importance of grave mound management for their vegetation biodiversity and aesthetic values.

Norwegian legislation defines the cultural importance of cultural elements from before 1537 and automatically protects them (Miljøverndepartementet 1996), thus protecting all grave mounds. Despite legislation, cultural elements and environments are lost at an alarming speed, and grave mounds are no exception. Agriculture is a common cause of damage or loss of cultural elements. Many of today's best agricultural areas were also the most suitable for cultivation in ancient times, and therefore many of the oldest cultural elements are found in agricultural areas. In many cases, grave mounds have been seen by land owners as troublesome obstacles to land improvement (Riksantikvaren 2004), and only in the age of the tractor, 1200 grave mounds have been lost just in western parts of Norway. A study using aerial photos in eastern Norway showed that 50% of the grave mounds in the area were ploughed down (Statens-Forurensningstilsyn 2004).

Legislation prohibits damaging or changing the mound, but when it comes to management the existing official guidelines (Riksantikvaren 2003) are not obligatory and not very specific, meaning that the management of grave mounds varies from complete mowing to complete scrub and tree invasion. It is important to bear in mind that, for the cultural remains inside the mound, the roots of trees can be damaging. Grave mounds and other cultural elements located in forests can also be difficult to distinguish as such, and are thus very vulnerable to damage in relation to forestry operations (Sollund 2003).

In order to develop management strategies for grave mounds that can encompass their different qualities as cultural artefacts, visual elements and biodiversity-rich features, knowledge about these qualities and their interaction is needed. This paper will first outline the importance of grave mounds in Norway from different

viewpoints, and then describe a study in progress that attempts to answer how the different qualities react to varying management regimes.

Grave mounds as a meeting point of different disciplines

Cultural importance

Through the history of archaeology, the archaeology of graves has been important for the studies of almost every aspect of human life. Grave mounds have received great attention due to their properties as ‘treasure chambers’ of information about life in ancient times. The studies of their form and content have enhanced our knowledge of the social structure, status, demographic and ethnic aspects of their times, as well as of religion and the conceptual world of their constructors (Kaliff 1998).

Tsigaridas (1996) categorized two trends in research on graves and society. On the one hand, grave mounds are treated as symbolic/religious expressions which can tell us about the view of the world, the impression of death, religion and rituals of their time. On the other hand, they are treated as an expression of the society, with its social and economic structures and differences between classes, geographical regions and genders (Tsigaridas 1996).

The great majority of grave mounds in Norway are from the Iron Age, although mound-like features from as early as the Stone Age are known. Bronze Age mounds exist, but are not very abundant (Gustafson 1906). Usually a distinction is made between mounds and cairns. Cairns are built as piles of rock which can be either rounded or sharp-edged. Mounds are built of soil, sand and other loose material. They are not, however, always easy to tell apart, as mounds can contain rocks and cairns can have layers of soil, or be covered by soil (Gustafson 1906). Only grave mounds are included in this study.

Visual characteristics and placement in the landscape

The visual importance of grave mounds has been recognized by landscape ecologists and landscape architects (Asheim 1978; Fry 2003; Fry et al. 2004), but it has received far less attention than their cultural properties. In particular, the public’s appreciation of grave mounds as landscape elements is little known. The role their condition and management (e.g vegetation cover) play in public perceptions is known to an even lesser degree.

Grave mounds are often very distinct visual features, depending on their state. Most mounds have a circular shape, although more oval shapes and long mounds are not rare, and even square and pyramid-shaped mounds have been found (Jacobsen and Follum 1997; Tørlen 2001). Average size ranges from 6 to 8 metres in diameter and about one metre in height, but Norway is also rich in larger mounds, and sizes of 24-25 metres in diameter and heights of 4 metres are not seldom found (Gustafson 1906). The size of the mounds has often been enhanced by the placement of the mound in the terrain, for example, on a natural height that makes the mound look bigger than it actually is (Gustafson 1906).

Mounds are often located in groups or clusters, interpreted to be the burial places for people of ancient farms (Jacobsen and Follum 1997, p. 102), which in many cases still exist. The dead were buried next to each other over the years. Many mounds have experienced robbery or exploration for treasures (Gustafson 1906, p. 135-136), often leaving holes or craters.

Grave mounds are located in a variety of ways in the landscape. Usually they are located in the outskirts of a landscape room as if addressing it through the view from

the mound (Gansum, Jerpåsen and Keller 1997). Gansum et al. (1997) organized the variety in location into five categories according to the view from the mounds: on the top (“the grave mound addresses all the surrounding landscapes in a 360 degrees view”), below the top (“the grave mound addresses the landscape directly below”), with the back to the wall (“the view from the mound is blocked in one direction”, on the edge (“long-distance view in several directions, but the grave mound addresses a particular landscape nearby”) or secluded (“the grave mound is isolated from the surroundings”). Many grave mounds were originally connected visually, but are now separated by buildings or dense vegetation such as forest plantings (Fry 2003). Grave mounds connected visually along a North-South line have been reported from Ås and Vestby in southeastern Norway (Nicolaysen 1866).

Biodiversity on grave mounds

The vegetation cover on grave mounds varies greatly, as do their management and the characteristics of their surroundings. Mounds range from being completely mowed in someone’s garden or in a park, to being parts of cattle pastures in open land, to being overgrown field islands in agricultural land, to being hidden in dense spruce forests.

From a biodiversity perspective grave mounds are interesting, as investigations in Sweden and Denmark have shown the vegetation on grave mounds to be historically genuine and species-rich (Gustafsson 2000a; 2000b; Nilsson 1982). Grave mounds often have the characteristics of ‘remnant’ habitats in agricultural landscapes. This along with their soil and structural properties can make them important for biodiversity (Skar et al. 2002).

There are limited assessments of how the biodiversity of grave mounds changes with different management regimes, although possibilities for parallels to investigations of field islands can be seen for grave mounds located in agricultural land (see e.g. Köchy 1991). Management is, however, likely to affect the vegetation biodiversity of grave mounds.

Assessing multiple qualities – a multidisciplinary study

The present study embraces the complex characteristics and the various values of grave mounds. Grave mounds have been studied from various perspectives, but the interrelations between their different values are little known and research on these is necessary to develop management regimes able to comprise all aspects of grave mounds. This multidisciplinary study focuses on the effects of management or lack of such, expressed as a degree of scrub and tree invasion. Tress et al. (2005, p. 179) define as multidisciplinary “studies that make a research effort of different academic disciplines, related to one subject, but with multidisciplinary goals”. In such studies, “Participants exchange knowledge, but do not have the aim to cross subject boundaries to create new integrative knowledge and theory” (Tress, Tress and Fry 2005, p. 179). My study is multidisciplinary in the sense that it includes approaches and methods from different scientific fields. However, the study also has an integrative dimension in the intention to create integrative knowledge and solve the common research goal of managing grave mounds in the best way for all interests.

A sample of mounds representing varying degrees of scrub and tree invasion have been selected (Figures 1-3, Table 1), and will be the objects of a visual-preference study as well as a botanical survey. How the two aspects are affected by scrub and tree invasion will be investigated with the aim to see how they interrelate and how this



Figure 1. Grave mound in Category I of scrub and tree invasion; open with low-cut vegetation



Figure 2. Grave mound in Category III of scrub and tree invasion; half open with some scrubs and single trees



Figure 3. Grave mound in Category V of scrub and tree invasion; Covered with scrubs and trees

can be incorporated in management regimes. The grave mounds included in the study have primarily been chosen for their visual properties. To be able to assess whether it is the scrub and tree invasion or other aspects that affect the visual quality of the grave mounds, features other than scrub/tree invasion need to be kept as constant as possible. The mounds chosen will be of relatively equal size and form, and classical cairns will be left out of the sample. This means that the choice of mounds does not necessarily do justice to archaeological classifications of grave mounds, in that the sample may contain grave mounds from different eras or of otherwise varying archaeological quality, but with more or less the same visual expression. That is, they would look the same to members of the general public.

Table 1. Categories of scrub and tree invasion

Category	Description
I	Open with low-cut vegetation
II	Open with regularly cut or grazed meadow vegetation, tall grass and flowers, few scrubs
III	Half open with some scrubs and single trees
IV	Relatively closed with partly dense scrubs and trees
V	Covered by scrubs and trees

The visual survey

The visual quality of the grave mounds and their management will be assessed through a preference survey using photographs of the selected mounds. The landscape-preferences approach is only one of the possible starting points for

landscape assessment. The approach has been undertaken by several researchers from a variety of scientific fields (Zube 1984; Strumse 1994; Wherrett 1998; Aoki 1999; Hägerhäll 1999). It uses the landscape as the functional unit and is a good starting point for analysis of the human–landscape relationship. In emphasizing public perception, the preference approach seeks to involve the public in the landscape assessment process (Wherrett 1998; Bullen 1999; Wherrett 1999). The preference approach has the ability to treat the whole of the landscape as an integrated unit. By changing the content of the landscapes used in the study, the impact of different forms of landscape changes on human visual landscape experience can be understood.

Despite limitations, colour photographs have been found to represent landscapes in a satisfactory manner when compared to preference rankings made in the field (Trent, Neumann and Kvashny 1987; Wherrett 1998). The need to use a surrogate rather than taking the survey subjects to the landscapes is both a result of practical limitations, such as the time required to take respondents out in the field, and a way to control what influences the preference rankings through the control of picture content.

Reflecting on what is a visual landscape, one will find that perception of the visual landscape will inevitably comprise other landscape values and values of the observer. The observer sees the visual features but will perceive them according to evolutionary, cultural and personal background (Kaplan and Kaplan 1989; Bourassa 1990). The observer will read into the visual expression his or her own values and evaluate the qualities according to interests, for example biodiversity or cultural heritage. He or she will also perceive from the physical structure the functions of the landscape, the possibilities for recreation, whether it is accessible, and so on. Even the mere physical structure will be weighted in the perception, so that the perceived physical structure might be different from the ‘objective’ landscape structure out there, that is, the focus of different observers can be different.

The likelihood of different observers perceiving the landscape and in this case the grave mounds differently, makes it relevant to ask whether common denominators and patterns can be found within and between groups of people with interest in grave mounds. A possibility is to compare groups of people such as farmers, members of the general public, members of local history organizations and cultural-heritage authorities. For successful management, it is highly important to identify the possibly different understandings of what grave-mound management should be between such groups.

Photos have been taken of the mounds, with care taken to keep weather and light conditions as equal as possible. The respondents in the survey will be invited to come to a survey location, and will be shown the colour photographs of the grave mounds in pairs on a big screen. For each pair, they will be asked to pick the aesthetically most attractive one. Alternatively, they will be asked to pick the one in each pair that best fits their personal ideal image of a grave mound. They will also be asked to sort the pictures according to whether or not they really think it is a grave mound. This is done in order to identify a possible limit where the grave mound can no longer be distinguished from an ordinary little hill.

I choose to summon people instead of, for example, sending out a questionnaire, so that I can control the circumstances, the time of exposure to each image and who is actually responding. The method of forced choice between two photos in a pair is preferred over giving ratings of each photo, as I presume that this gives less unwanted fatigue effects in a photo set with relatively similar images.

The botanical survey

Thirty grave mounds within the range from highly managed to non-managed will be objects of botanical investigations involving measures of biodiversity. Both presence/absence of species and abundance will be registered, as well as brief descriptions of the vegetation in the nearest surrounding of the grave mound.

I choose to lay out a grid of registration squares on the grave mound and do systematic registrations of the vegetation inside the squares, rather than a random sampling or an attempt to scan the whole mound for species. This seems to be the most systematic way of covering the mound for one person, and is consistent with the advice given by Causton (1988). He stated that for description and mapping purposes regular sampling is virtually a necessity and without disadvantages. Using square quadrates is the usual means of sampling vegetation for floristic description (Kent and Coker 1992; Knapp 1984). The size of the squares was chosen as 0.25 m², that is, relatively small, as grave mounds are topographically rapidly changing and this presumably opens up for changes in vegetation over short distances, which can better be accounted for in the analysis with smaller squares.

A species number-of-squares relationship test was performed on four mounds to determine the appropriate number of sample squares. A grid of thirteen 0.25m² squares was laid out on the mounds, and all plant species found inside the squares except mosses were identified. The results from the test run showed that very few new species were added after the 10th square. In order to ensure equal representation of all geographical sides of the grave mounds (North-South-East-West), the number of squares will still be kept at 13 for the further investigations. Notes were also made regarding the surrounding vegetation, although all squares were located on the mounds themselves.

Intertwined values – Implications for management

The study aims to generate input for cultural heritage experts about the vegetation properties of grave mounds and public preferences for their aesthetic aspects and maintenance. Through the preference study, landscape preferences of the public and their correlation with the opinions of experts in the field can be identified and be integrated in planning policies strengthening public support for management plans (Coeterier 2002; Kaplan and Kaplan 1989). Results from the vegetation analysis will be compared with results on public perception to see how the two react to changes in management. This knowledge can contribute to the creation of integrated management tools and can provide information to increase the acceptance of grave mounds as objects for protection.

The starting point of this study is the assumption that management makes a difference, culturally, aesthetically and for biodiversity. The hypothesis is that the different characteristics are not independent but intertwined, meaning that changing one will inevitably change the others. Also, there is a probability that as management regimes change, the different characteristics react differently. A hypothetical presentation of how such changes could develop is given in Figure 4.

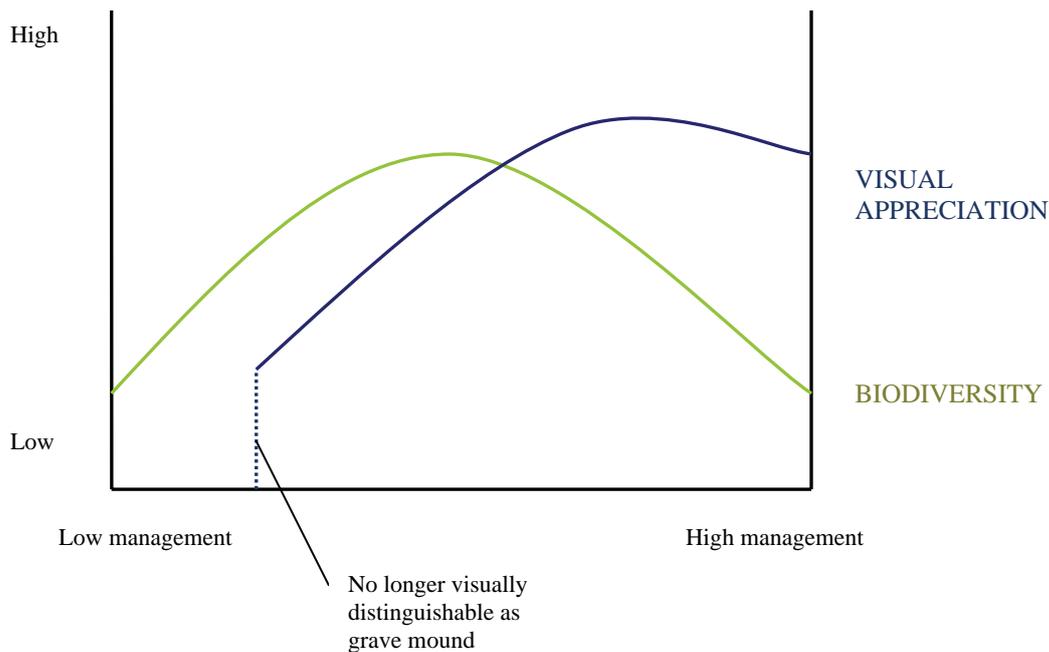


Figure 4. Hypothetical presentation showing possible relationships between visual appreciation, biodiversity and the management of grave mounds

The fact that different values react differently to management change implies that the findings of the study might not give a management level for grave mounds that is optimal for all interests. I might find that when values increase for one of the aspects, the value for other interests might decrease. It can be that what is good for biodiversity is not good for aesthetic appreciation or the cultural value of the grave mound. For example, what if biodiversity requires levels of scrub and tree invasion way beyond what people like to see and so gets in the way of cultural communication? Or what if the roots of the trees that people might like damage what is inside the grave mound, while the trees themselves deprive other species of light? As mentioned before, there is also a possibility that there exists a visual threshold related to scrub and tree invasion, at which the grave mound actually goes from being perceived as a grave mound to being seen as just another little hill.

The pros and cons of the multidisciplinary approach

Fry (2001) made a general point about interdisciplinary research that is also valid for my approach. He stated that the results do not necessarily strengthen every participating researcher's own special interest. Neither will they remove all land-use conflict. Fry (2003) made an example of collisions between the interfaces of nature and culture concerning vegetation and grave mounds, and how one value might decrease as another increases. When dealing with integrative research one must be prepared for conflicting results, which is equally valuable knowledge. Researchers expecting integrative studies to give results and solutions equally good for all involved parties may easily be disappointed. Fry (2003) argues that in cases of conflicting values, the different values must be weighted and prioritized. Recognizing that the support of different values might change over time, caution must be taken in making decisions that can reduce landscape values permanently.

My study will provide information on the relationships between the different values of grave mounds in relation to their management. In a case where results

showed similar optimum levels of management for all values in question, this could be incorporated directly in new integrative management guidelines. However, the results may show that management for visual appreciation would conflict with management for vegetation biodiversity, or management for biodiversity might conflict with cultural-heritage management. In such a case, the direct implications for management would be left to policy and value judgments, and the knowledge about the relationships between the different values would help in making informed decisions at the policy level. One could also aim at the development of new theory combining the interests related to grave mounds, and in the longer term improve the understanding across current interest and discipline boundaries.

Another common frustration in interdisciplinary research is the specialized language of different subject areas (Fry 2001). Jargon can make good communication difficult and even have researchers talking past each other without knowing it. Fry (2003) argues that landscape ecology as a discipline has always included the cultural perspective as an important aspect. Landscape ecology can thus be a bridging discipline for management challenges requiring integrative solutions. Landscape ecology is also the starting point for the study. For a researcher it is beneficial to have an educational background in both aspects; training in nature management and some experience in research on visual aspects. Studies integrating different approaches can also enhance communication in the long run, as new shared theory can be built and common terminology can be established.

For a single researcher there is an obvious danger in taking on too much when designing a multidisciplinary study. Doing two completely different experiments or field procedures can be very time-consuming, and so can be the handling of the data sets. This must be accounted for at planning level.

Despite the challenges of taking on the multidisciplinary approach, I believe that the aim of the study gives no other option. Grave mounds are of interest for different reasons, and multidisciplinary is required to deal with their complexity and make new and integrative management tools possible. I believe the approach comes as consequence of the aims of the study, and, rather than keep it on a purely disciplinary level, it would gain from further integration of the approaches.

Conclusion

Grave mounds are important landscape elements of interest to several academic and practical fields. My study aims at investigating the effects of their management on visual appreciation and vegetation biodiversity. The methods and approaches of the study reflect the goal of understanding the relationships between the different values, and through this contribute to the development of integrative management strategies and possibly new joint theory. The paper describes the multidisciplinary path to the goal, and concludes that despite challenges linked to the choice of approach, it is the approach required to obtain the objectives.

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