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Place meanings of Dutch raised bog landscapes: an interdisciplinary long-term perspective (5000 BCE–present)

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ABSTRACT

Few natural landscapes have been so negatively stereotyped as raised bogs. These stereotypes as well as knowledge gaps on bog perceptions have hampered the development of nuanced and realistic views on humans' historical relations to bogs. We studied variation in eight bog place meanings (attachment, beauty, biodiversity, functionality, risk, admiration, historicity, and mystery) from prehistory to present by integrating qualitative archaeological and historical with quantitative survey evidence on Dutch bog areas. Virtually all place meanings were found in late modern and present-day material. In older periods, functionality, risk, and mystery were dominant. Daytime/night-time differences could explain the co-existence of apparently opposite place meanings. Physical bog landscape characteristics were important place meaning determinants, and similar meaning patterns across different bog areas underlined this. The long co-existence of mystery (and risk) alongside functional meanings may explain the persistent popularity of negative bog stereotypes.

KEYWORDS

Place meaning; sense of place; peatland; raised bog; Low Countries; The Netherlands; long-term perspective; archaeology; history; online survey

Introduction

Few natural landscapes in Europe have evoked both fascination and negative stereotypes to the extent that raised bogs have (Flint & Jennings, 2022; Meredith, 1999; Rotherham, 2020, p. 147). These peat moss-dominated wetlands consisting of organic soils once covered large parts of Northwest Europe and the Low Countries in particular (Joosten, 2019; Joosten & Couwenberg, 2001).¹ In the Netherlands and adjacent areas, bogs have largely disappeared since late medieval times due to agrarian reclamation and large-scale exploitation of peat for fuel. However, these peatlands have left an important cultural and socio-economic legacy, reflected among others in numerous toponyms, towns and villages with a peat-colonial past, and specific land parcellation types (Joosten, 2019).

Especially in popular literature, persistent clichés describe bogs as remote, hostile, dangerous, and poorly accessible (Gearey et al., 2020; Jarzab, 2014; Nekrassoff, 2007). Yet, bogs were valuable to people and have been used in multiple ways for millennia, as reflected in archaeological

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and historical records (e.g. Paulissen et al., 2021; Rotherham, 2020, p. 150; Van Beek et al., 2015). In the Low Countries, bogs have been heavily contested landscapes since late medieval times, which further underlines their varied use values to people in the past (e.g. Paulissen et al., 2021).

The apparent contradiction between persistent negative stereotypes and the obvious socio-economic value of bog landscapes in the past raises questions about the nature and interrelations of the different meanings of bogs to people. The long history of human-bog interaction undermines simplistic binary views of bog landscapes as good or bad places and demands a nuanced approach recognising the complexities of people's interaction with—and understanding of—these landscapes through time (cf. Flint & Jennings, 2022, p. 165). The societal need for such a nuanced approach lies in the fact that water management at large, and bog conservation and restoration in particular, are increasingly complex social challenges with often divergent and conflicting stances of local stakeholders (Bal, 2019, p. 339; Jacobs & Buijs, 2011, p. 1). Moreover, much effort is going into peatland rehabilitation, but the cultural record is often overlooked as a key component both of the importance and 'valuing' of these landscapes in the present day and the need to protect surviving archaeological remains (Flood et al., 2021; Gearey & Everett, 2021).

This paper addresses past and present human perceptions of bogs using the notion of place meaning, a broad concept that describes how people (individually or as a group) ascribe and preserve meaning to a place. Place meanings can have many forms, e.g. use of a place, its aesthetic value, emotional attachment to, and memories or knowledge of a place. Place meanings are assigned to places by people, and hence subjective by nature (Jacobs & Buijs, 2011). Thus, place meanings inherently vary spatiotemporally in relation to individual and cultural differences (e.g. Relph, 1976), which has also been established empirically (Jacobs & Buijs, 2011). Most empirical place meaning studies (often labelled as 'sense of place' research) are based on monodisciplinary sources and analyse one case study area in its present-day situation or in a short period of its history (e.g. Jarratt, 2015; Shamai, 1991). Such approaches give valuable insights into variation in place meaning patterns within specific areas and time frames, but do not allow inferences about place meaning variation across areas and longer time spans.

This paper will examine the variation in bog place meanings and how these have developed in the Netherlands from prehistory to present in different specific areas. We do so by integrating qualitative archaeological and historical evidence with quantitative survey evidence. Our research question is: What spatiotemporal patterns in place meanings of bog landscapes occur from prehistory to present?

The interdisciplinary approach we apply connects the present to long-term history and is novel in place meaning research. Each of the three disciplines involved in this study has its own epistemological characteristics, source type, and methodology. This means we can compare and combine the outcomes at the conceptual level of place meanings and not at the level of data. A framework of predefined place meanings, then, fosters interdisciplinary comparison. The analysis departs from five general categories of abstract place meanings labelled as attachment, beauty, biodiversity, functionality, and risk, as an overarching pattern derived from analyses of interviews in two case studies (Jacobs & Buijs, 2011). To these, we added three bog-specific place meanings that we expected a priori to be relevant: admiration (not necessarily overlapping with a sense of *beauty*), historicity, and mystery. We define *historicity* as traces of past human bog usage or as the collective remembrance of specific local histories relating to the bog landscape (that people may or may not feel *attached* to), while *mystery* is understood here as something secret or incomprehensible, a truth of faith unintelligible to the mind, or as something relating to a spiritual value. With regard to the latter, we are aware that prehistoric and early historic perceptions cannot be 'measured' directly, as we only have the archaeological record to work with, and that it needs to be accounted for that modern-day interpretations of archaeological data inevitably are culturally loaded (e.g. Brück, 1999; Van de Noort & O'Sullivan, 2006).

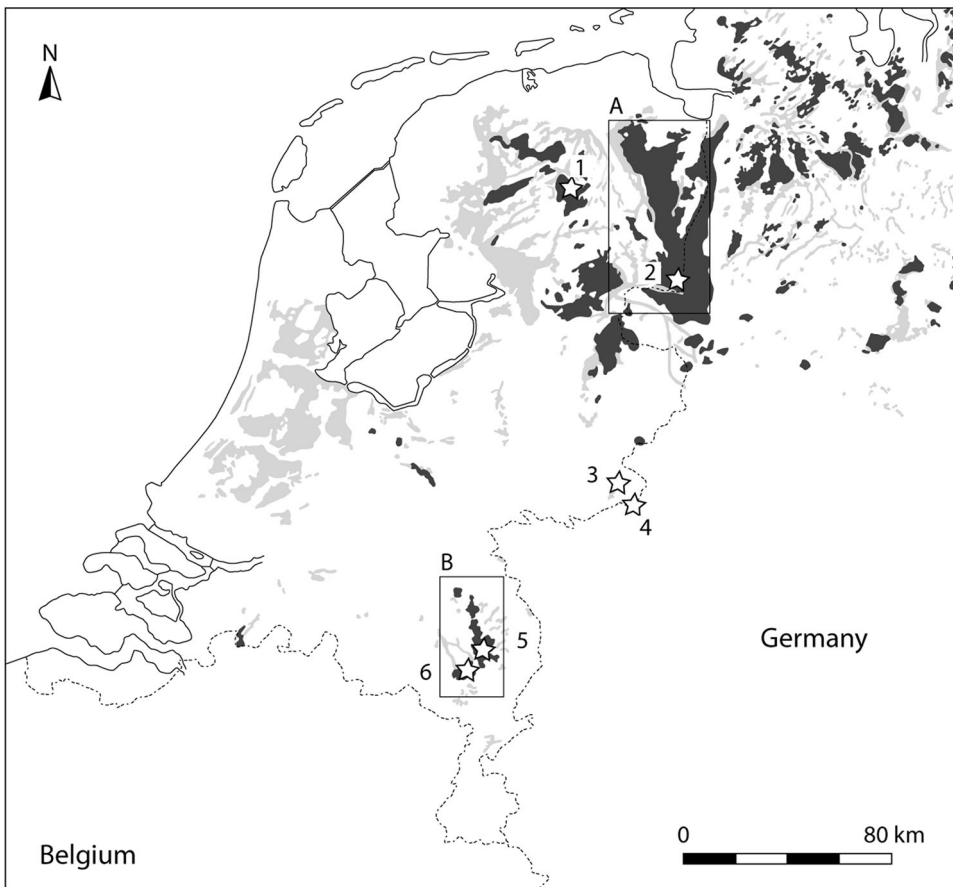


Figure 1. Map of the Netherlands indicating early modern peat distribution (dark grey represents bog peat; light grey represents fen peat) and study areas. The historical and archaeological analyses of bog place meanings were based on sources and finds, respectively, from the Dutch part of the Bourtanger Moor (A) and Peel (B) bog regions. Numbered stars indicate the extant bog areas included in the online survey: Fochteloërveen (1), Bargerveen (2), Korenburgerveen (3), Wooldse Veen (4), Deurnsche Peel & Mariapeel (5), Groote Peel (6). Peat distribution map adapted by permission from Springer Nature: Springer, *Climatological, stratigraphic and palaeo-ecological aspects of mire development*, W. A. Casparie & J. G. Streefkerk, Copyright 1992 (https://doi.org/10.1007/978-94-015-7997-1_3).

By comparing these eight place meanings this way across time and space, we add a novel aspect to the existing literature, which has predominantly focussed on limited temporal and spatial ranges.

Study areas

We focussed on extant raised bog areas across the eastern half of the Netherlands, where virtually all remaining Dutch bogs are to be found (Bal, 2019, p. 338). For the online survey to record present-day place meanings, six bog areas were selected (two in the northeast, two in the east, and two in the southeast; Figure 1). The selected bogs are listed as Natura 2000 reserves. The historical and archaeological analyses of bog place meanings focussed on the Peel bog region and the Dutch part of the former Bourtanger Moor bog region (Figure 1). Hence, for this part of the study, we concentrated on fewer but larger bog areas. This was for three reasons. First, many historical sources only permit to identify the larger bog region and not the specific bog areas within these to which the information pertains. Second, it was expected for some of the smaller bog areas that insufficient relevant historical sources and archaeological finds would be

available. Third, it would have been too time-consuming to search for and analyse historical and archaeological evidence for all six bog areas.

All study areas are in regions that bear clear evidence of habitation between 5000 BCE and 1700 CE. In prehistoric and Roman times, the settlements consisted of small agrarian hamlets. Villages and towns only appeared from the Middle Ages onwards. These settlements were on higher and drier sandy soils, such as moraine and cover sand ridges (e.g. Gerritsen, 2003, pp. 210–213; Spek, 2004). The bogs themselves, which until the Middle Ages had not been subjected to large-scale reclamation yet, were too wet for permanent habitation.

Methods

Online survey to measure present-day place meanings

Between March and April 2021, a total of 821 respondents completed the online survey designed for this study. Most respondents lived close to one of the six studied raised bog areas. Potential respondents were approached through local social media groups, articles in local newspapers, and 1000 flyers distributed door-to-door in places near the bogs.

The survey mainly consisted of items to measure the eight predefined place meaning dimensions. Each meaning was measured with three differently formulated items (Supplementary Appendix 1). Respondents indicated to what extent these meanings applied for them to the bog landscape in their neighbourhood on a 5-point scale. Survey forms are available on request.

For each meaning, a reliability analysis was conducted to assess how closely related the three associated items were to measure the same place meaning, using Cronbach’s alpha as the reliability estimate (Field, 2013). The mean score over the three items was computed for each meaning, creating a new index. These indices were used for further analysis. In this paper, we present descriptive statistics for each of the meanings and bog areas.

Historical analysis of place meanings

The historical analysis was largely based on published sources concerning the Bourtanger Moor and Peel bog regions (Figure 1). We collected sources from different categories that together were expected to represent complementary place meanings of bog landscapes (Table 1). Largely for reasons of available time, fictional sources and other artworks were excluded, although several of the oral history sources we analysed included folklore.

Source analysis departed from the general place meanings and bog-specific place meanings examined in the online survey. Source documents were coded in ATLAS.ti 9 (<https://atlasti.com/>). We coded place meanings and any other information in the sources considered relevant to contextualise and understand the encountered place meanings. Depending on availability, source documents were added to the analysis until saturation of unique codes was observed.

Table 1. Source categories from which individual sources were drawn for the historical analysis of bog place meanings.

Source category	Period covered
Oral history accounts by bog area residents	c. 1890–c. 1975
Travel and excursion accounts and regional descriptions by learned non-locals	c. 1777–1895
Scientific or technical texts on peat bogs or bog use	1658–1890
Early modern manuscript maps and printed maps	1536–1792
Medieval charters and (early) modern bylaws concerning bog common lands (granting of usage rights, resolution of conflict, user regulations)	1326–1822
Medieval chronicles on regional war and conflict against the backdrop of bog landscapes	c. 1233–c. 1530

Supplementary Appendix 2 contains information on the individual sources used.

Supplementary Appendix 2 lists all source documents and codes included in the historical database. Code co-occurrence tables were created to study how the place meanings varied spatio-temporally and how they correlated with socioeconomic and landscape-related aspects.

Archaeological methodology

The archaeological analysis was largely based on a detailed inventory of published literature on the Bourtanger Moor and Peel bog regions, varying from scientific publications to reports of contract-based research and so-called ‘grey’ literature. A large number of publications are available for the Bourtanger Moor, which archaeologically is the most intensively investigated Dutch bog landscape (e.g. Van der Sanden, 1999). The Bargerveen bog, in the south of the Bourtanger Moor, was the target area of our online survey but has hardly yielded archaeological evidence because of its relatively intact state. Nevertheless, we assume that the archaeological data obtained for the adjacent parts of the Bourtanger Moor are representative of the Bargerveen as well. The Peel bogs have traditionally been less studied and have yielded far less documented finds (e.g. Ball & Jansen, 2018). To compensate for the scarcity of published literature, an analysis was made of all relevant sites registered in the national Dutch archaeological repository Archis III (<https://archis.cultureelerfgoed.nl>) from only the Peel bogs. The observed patterns for both case study areas were analysed in the context of the large body of international archaeological literature, specifically with regard to the interpretation of deliberate depositions of objects in bogs and other wetlands (e.g. Bradley, 2000).

Results

Present-day place meanings

Seven of the eight predefined place meanings apply to the study areas, as the positive scores of these means at both the individual area and the aggregate levels suggest, the exception being risk (Table 2). Thus, respondents find the respective bog areas places of biodiversity and beauty, they feel attached, find the areas useful, admire the places, and consider these to some extent as historical and mysterious, while not experiencing risk. Among the general place meanings, biodiversity and beauty stand out as the most important. Risk was by far the least intensely assigned meaning, and attachment and functionality in between. By and large, the same patterns can be observed in the general place meanings for individual areas. The order of importance of these meanings is nearly consistent across the areas, and, for each meaning, the means are in a relatively narrow range. Wooldse Veen stands out a bit, with lower scores for the majority of meanings, yet the overall pattern is of similarity. The bog-specific place meanings also show this pattern of similarity across areas. Only the high score of historicity assigned to Fochteloërveen stands out. The other meanings are in a narrow range across areas and the order of importance of the bog-specific place meanings is the same across areas.

Our findings do not indicate that each respondent assigns the same meanings to bog areas. On the contrary, individual expressions vary considerably as the standard deviations in Table 2 indicate. Overall, the findings suggest commonalities across areas and differences across individuals, with relatively low scores for the place meanings mystery, functionality, and particularly risk.

Place meanings as indicated by historical sources

All eight place meanings were also found in the historical sources, where the number of meanings encountered increased substantially in late modern times. The occurrence patterns of place

Table 2. Present-day place meanings of Dutch raised bog areas as recorded in the online survey. Items were assessed on 5-point scales ranging from -2 (extremely disagree) to +2 (extremely agree) with 0 as a neutral point.

Raised bog	<i>n</i>	General place meanings				Bog-specific place meanings			
		Biodiversity <i>M (SD)</i>	Beauty <i>M (SD)</i>	Attachment <i>M (SD)</i>	Functionality <i>M (SD)</i>	Risk <i>M (SD)</i>	Admiration <i>M (SD)</i>	Historicity <i>M (SD)</i>	Mystery <i>M (SD)</i>
Fochteloërveen	223	1.52 (0.78)	1.58 (0.78)	0.88 (0.99)	0.90 (0.86)	-1.41 (0.79)	1.16 (0.96)	1.84 (0.82)	0.57 (1.08)
Bargerveen	177	1.58 (0.74)	1.50 (0.93)	1.07 (0.99)	0.95 (0.80)	-1.44 (0.77)	1.20 (0.87)	0.75 (0.91)	0.65 (1.00)
Korenburgerveen	61	1.62 (0.61)	1.60 (0.77)	0.92 (0.99)	0.96 (0.65)	-1.25 (0.82)	1.26 (0.81)	1.01 (0.80)	0.51 (1.08)
Wooldse Veen	29	1.05 (1.06)	0.99 (1.35)	0.49 (1.21)	0.55 (0.94)	-1.21 (0.83)	0.87 (1.14)	0.69 (0.99)	0.30 (1.01)
Deurnsche Peel & Mariapeel	170	1.37 (0.82)	1.33 (0.98)	0.90 (1.08)	0.63 (0.91)	-1.24 (0.91)	0.91 (1.05)	0.92 (0.91)	0.57 (1.09)
De Groote Peel	161	1.58 (0.59)	1.55 (0.71)	0.96 (0.90)	0.81 (0.87)	-1.37 (0.82)	1.07 (0.88)	0.98 (0.83)	0.63 (0.85)
All	821	1.50 (0.75)	1.48 (0.88)	0.93 (1.00)	0.83 (0.86)	-1.35 (0.82)	1.10 (0.95)	0.87 (0.87)	0.58 (1.02)

M represents means, *SD* represents standard deviations, *n* is the number of respondents.

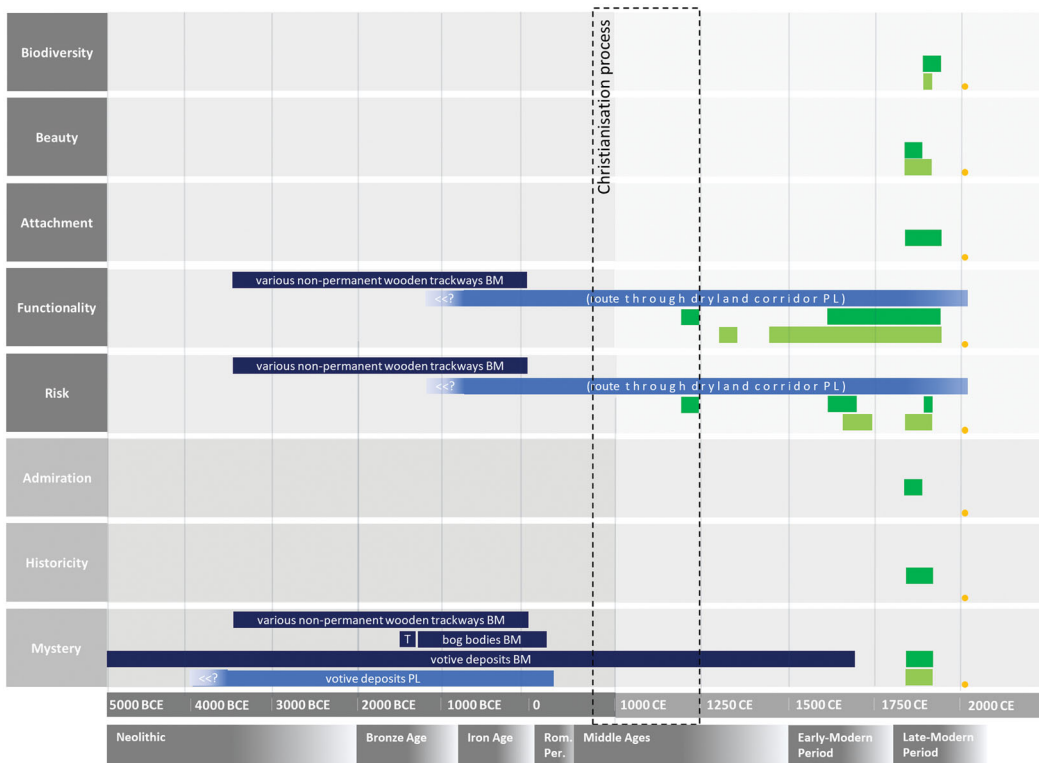


Figure 2. Long-term overview of place meanings pertaining to Dutch bog landscapes, as derived from archaeological (blue bars), historical (green bars), and present-day online survey (orange dots) data. Note the time scale difference after 1000 CE, applied to make the pattern of historical bars more readable. Dark blue and dark green bars pertain to the Bourtangter Moor region (BM), while light blue and light green bars pertain to the Peel region (PL). All six bog areas covered by the online survey are here taken together and represented by one orange dot. T: Temple of Barger-Oosterveld (which was probably in use for less than one century).

meanings were generally comparable for the Bourtangter Moor and Peel regions, although some meanings were not found in sources pertaining to the Peel (Figure 2).

Functionality and to a lesser degree risk were the most persistent place meanings through time and were dominant meanings in pre-1850 sources. Functionality is related to a range of economic bog usage forms but mainly peat-cutting. Medieval sources occasionally mentioned the use of (bog) wetlands in the Bourtangter Moor region as battleground sites, notably treacherous for armies not familiar with the area (Van den Hombergh & Van der Werff, 2012; Van Rij, 1989), while some early modern sources referred to Bourtangter Moor bogs along the Dutch Republic's border functioning as inundated defence lines. In early modern sources, passages reflecting risk mainly concerned bylaw rules on the possibility of cattle drowning in bogland. In late modern sources, risk was mostly associated with the danger that sinking away or lightning posed to humans crossing bog landscapes.

Place meanings coded as attachment, beauty and biodiversity appeared in our sources after 1850. Venema (1855, p. 34) suggests that attachment to bogs was experienced by local people who economically depended on bog landscapes. People from various places in the Bourtangter Moor and Peel bog regions, who experienced a sense of loss of biodiversity and scenery due to bog reclamation, related to the meanings of attachment and beauty when referring to the pre-reclamation state of 'their' bog landscape (Meertens Instituut, 2013–2022).

The bog-specific place meanings of mystery, admiration, and historicity were not prominent in our written sources. The latter two meanings were found only for the Bourtangter Moor region

after 1850. Historicity is related to archaeological finds from exploited bogs (Craandijk & Schipperus, 2007 [1880], p. 49) and to the collective remembrance of specific local histories—such as the military past of the former fortress of Bourtange, which once was strategically situated on a natural dryland corridor through the bog landscape (Meertens Instituut, 2013–2022). On the one hand, the meaning mystery related to phenomena beyond understanding, e.g. how bogs and the peat fuel they contain had come into being at all (Borgman, 1890; Schoockius, 1658). On the other hand, several oral history accounts mentioned superstition or folklore phenomena, such as fiery men (Dutch: *vuurmannen*, *gloeigen*) and will-o'-the-wisps (Dutch: *dwaallichten*). People claimed to have encountered these phenomena typically while out in the bog for work at dusk or dawn (link to functionality). Senses of admiration and beauty similarly resulted from intense human economic engagement with bog environments. Venema (1855, pp. 6, 30, 35), who was positive about buckwheat cultivation on bogs, admired the sight and odour of this crop when flowering, while otherwise describing (non-cultivated) bogs as remote and monotonous.

Next to long-term changes in the prominence of different place meanings (Figure 2), shorter-term variability (seasonal, diurnal) was also important. Passages in our sources coded by season or daytime/night-time gave insight into how seemingly contrasting place meanings (functionality vs. risk or mystery) could co-exist. In the past, local peasants and workers depended economically on the bog landscape. Especially in spring and summer, during peat exploitation activities, many people would be working in the bog by day (e.g. Borgman, 1890; Schoockius, 1658; several dialect recordings from the Bourtanger Moor and Peel bog regions: Meertens Instituut, 2013–2022). Because of long and unregulated working days, people were sometimes still in the bog after sunset (functionality). Fears could then arise associated with poor accessibility (risk) and light phenomena (mystery) that could occur naturally in bogs: 'They used to see all sorts of things and nowadays they see nothing. But that was because people were always in the 'field', in 'nature', even at night. They did not look at whether it was dark or light.' (Dialect recording Valthermond, no. 1: Meertens Instituut, 2013–2022).

As evident from several oral history accounts from the Bourtanger Moor region, experiences of fear and superstition would be passed on in the lively storytelling culture that existed among peat workers during mealtimes in the bog and among villagers by the fireplace in wintertime (multiple dialect recordings from the Bourtanger Moor region: Meertens Instituut, 2013–2022).

Regularly, bogs were places of hiding and of clandestine activities (functionality), especially at night. Oral history accounts contain many references to (gin) smuggling in the Bourtanger Moor region (which is on the Dutch-German border) around the First World War. In bog commons, clandestine loading of other people's turves at night occurred frequently as suggested by a bylaw from the Peel region (Gemeentebestuur Someren, 1686–1709). People hiding in bogs were typically intimately familiar with bog topography. At the same time, there likely was a difference in perceived risk of accessing the bog (at night) between those people and the authorities. Peat workers even used the bog landscapes to intimidate less familiar antagonists, as this anecdote from the early twentieth-century Bourtanger Moor region shows:

When the Reverend De Weerd confronted peat workers of the Scholten firm who drank a lot (and thus left little money for their families), he would receive notes at home telling him to come at midnight to this or that boardwalk, to this or that peat pit. And he would go there, with a lantern! He would go there, and then he would hear people talking, but they would leave him alone. They wanted to see whether he dared to come. (Dialect recording Emmen, no. 1: Meertens Instituut, 2013–2022).

Place meanings as indicated by archaeological sources

Although the bogs were uninhabited, they were most likely entered and exploited by humans already in prehistory (functionality). Unfortunately, small-scale economic usage (e.g. hunting,

collection of firewood, peat extraction, sheep grazing) leaves virtually no archaeological traces, or there may be obliterated by later exploitation (Van Beek et al., 2015). However, that bogs were frequently entered is especially clear for the Bourtanger Moor. Various wooden trackways found there date from the period between the Middle Neolithic and the Iron Age (c. 3500–19 BCE; Casparie, 1987). Trackways indicate the desire to enter the bogs and to create the circumstances to do so in a safe or at least convenient way (assessment of risk). The trackways vary in length and construction techniques, ranging from narrow wooden paths intended for pedestrians to wide tracks suitable for wheeled transport. They were probably used for a limited time span, perhaps no longer than a few decades, and therefore do not represent a permanent infrastructure. Some are assumed to have been used for the extraction of bog iron ore (Casparie, 1987), but irrefutable evidence for this hypothesis is not available. Remarkably, none of the trackways completely cross the Bourtanger Moor. The fact that they end in the peatland is sometimes taken as an indication that they served a ritual purpose (e.g. Van der Sanden, 2001), for example, to make offerings, in line with the mysterious (or mythical) place meaning of prehistoric and early historic peatlands (see below).² However, short trackways—apparently suggesting movement within rather than across bogs—might just as well relate to ‘functional’ (economic) activities in the peatland.

Prehistoric wooden trackways are unknown from the Peel bogs. It is unclear whether these were never built or have not been recorded. However, a (long-distance) route apparently passed through the Peel near the present-day village of Meijel (Blankers et al., 2021, p. 82). This natural corridor, following the highest sandy areas in the wide vicinity, stayed in use until historical times. The Peel bogs have likely been entered in other sufficiently accessible places as well, for economic purposes (functionality).

The prehistoric and early historic place meaning of peatlands that stands out most prominently is mystery. The Bourtanger Moor is well-known for a wide variety of finds, mainly done during peat extraction in the nineteenth and early twentieth centuries, and generally accepted to represent votive offerings (e.g. Fontijn, 2003; Van Beek et al., 2015; Van der Sanden, 1999, 2001; Van Vilsteren, 1998). These finds date from a strikingly long time span (c. 5000 BCE–1700 CE). Additionally, bog bodies have been found in five places in the Bourtanger Moor, dating from the period between the Middle Bronze Age and the Iron Age (e.g. Van der Sanden, 1999). An especially famous find is the so-called ‘temple’ of Barger-Oosterveld. This small wooden building was constructed in the bog between 1478 and 1470 BCE and is assumed to have served ritual purposes (Waterbolk & Van Zeist, 1961). The archaeological find patterns (especially the number, character, and location of the finds) clearly indicate that the objects selected for such offerings were not chosen randomly and varied through time (Figure 3).

The practice to deposit (oftentimes precious) objects in bogs and other wetlands was a very common practice in prehistoric and early historic Europe (e.g. Bradley, 2000; Fontijn, 2003). It is generally interpreted as a way of communication with higher powers, specifically to beg for clemency, favours, or express gratitude. As such the mysterious (or mythical) dimension of bogs was widely recognised, and highly persistent. Even after the arrival of Christianity such ‘pagan’ practices, despite being explicitly forbidden by the church, continued until well into the seventeenth century. This is clear from numerous finds from the Bourtanger Moor and other northern Dutch peatlands, including copper kettles, pewter cups, copper dishes, coins, stirrups, and stone-ware jugs (e.g. Van der Sanden, 1999; Van Vilsteren, 1998). The sheer quantity of these finds, their quality, value, and their consistent find patterns indicate that the large majority of them reflect deliberate offerings rather than lost objects. Van der Sanden (1999) points out that written sources indicate that the (late medieval) rural peasant population did not just worship the Christian God but also believed in the existence of a parallel supernatural world, peopled by beings like forest women, house gods and spirits—which by the church authorities were stigmatised for belonging to the realm of superstition. Just like in prehistoric times, peatlands and other ‘natural’ places appear to have been considered suitable places for communication with

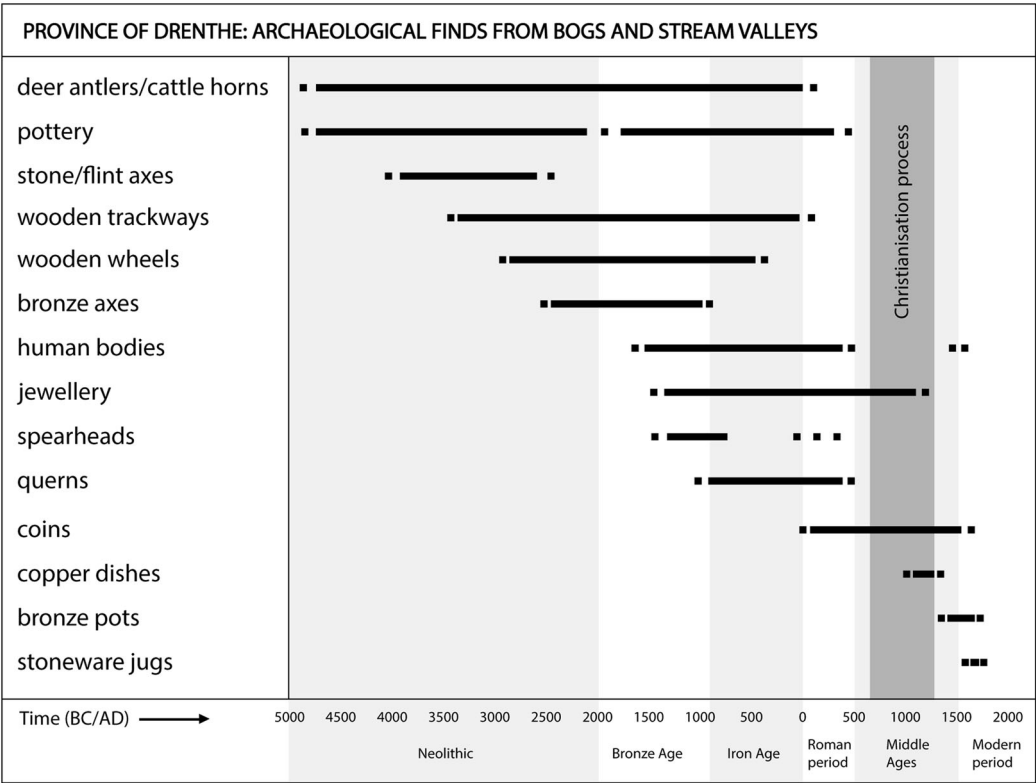


Figure 3. Temporal patterns of archaeological find categories from bogs and stream valleys in the Dutch province of Drenthe (including a large part of the Bourtanger Moor region). These finds are interpreted as votive offerings. Adapted by permission from Van Vilsteren (1998).

such higher powers. On a more general note, the deposition of votive objects was an intrinsic part of everyday life in many pre-modern societies. It was probably considered a practical and effective way of engaging with bogs by the practitioners (cf. Brück, 1999). As such, the place meanings functionality and mystery may well go hand in hand.

The abundant evidence for the prolonged mysterious (or mythical) place meaning attached to the Bourtanger Moor stands in stark contrast to the available data for the Peel bogs. Nevertheless, a small number of prehistoric and Roman-period offering finds are recorded from these peatlands as well. These mainly consist of stone axes (e.g. Blankers et al., 2021, pp. 73–74) and bronze weapons and ornaments (Fontijn, 2003, footnote 9 and appendices). The most remarkable finds are an extremely rare bronze ornamental disc dating from around the first century BCE, probably of Thracian origin (De Grooth, 1987; Roymans, 1988), and an exceptional Roman golden helmet from the early 4th century CE. The latter was wrapped in a leather Roman army tent, along with several other finds, and deliberately pressed into the peat near a sand ridge (Van Driel-Murray, 2000).

Discussion

Our results refute the binary picture of functional but hostile bog landscapes frequent in popular culture (e.g. Gearey et al., 2020). Instead, they show a diverse and nuanced picture of bog place meanings through time and space. This diversity consisted not just of independent place meanings linked to different social groups or individuals with different involvements and interests in bogs. Rather, contradicting place meanings could coexist within social groups or individuals, as

governed by, e.g. daytime/night-time differences. The outcomes suggest that specific physical characteristics of bog landscapes, such as their peat deposits, openness, sogginess, and luminous phenomena (Meredith, 2002, pp. 329–330) were important determinants of place meaning. This aligns with phenomenological viewpoints emphasising the ways in which dwelling in and embodied engagements with the landscape animate its perceived qualities (Merleau-Ponty, 1962; cf. Stedman, 2003, p. 671). After all, throughout history people have intensely experienced the spatial and material dimensions of bog landscapes through their various activities therein. The generally similar place meaning patterns across the different bog areas we studied further underlines the role of the physical landscape of bog ecosystems in determining generic bog place meanings.

Temporal and spatial patterns of bog place meanings

In our study, functionality, risk, and mystery were clearly more important bog place meanings in the past than at present. The decreased prominence of functionality and risk relates to the cessation of ‘traditional’ economic bog usage (notably peat exploitation) since the early twentieth century and to late modern infrastructure improvements. Most Dutch bog areas have become protected nature reserves since the mid-twentieth century. Earlier Romanticist influences on society and the advent of leisure time can explain an increase in the place meanings of beauty, biodiversity, and attachment.

The long-term history of the bog-specific place meaning mystery is remarkable. The substance of this meaning varied over time: from votive deposits to communicate with higher powers via wonder about how bogs and peat deposits had come into being and beliefs in will-o’-the wisps and fiery men to the present-day notion among survey respondents that ‘bogs are somewhat mysterious’. Constant factors in this changing notion of mystery seem to be the specific characteristics of the physical bog landscape and the connection to functionality (involving dwelling in the bog landscape). The long co-existence of the place meanings mystery (and risk) next to functionality may also explain the persistence of strong (negative) clichéd images about bog landscapes in popular culture until present.

There was a general background of similarity across the bog areas studied. However, compared to the Bourtanger Moor region, the weaker archaeological signals in the Peel region for—in particular—a mysterious (or mythical) place meaning dimension of bogs stand out. This is generally attributed to differences in reclamation history and scientific attention (Fontijn, 2003, p. 46; Gerritsen, 2003, p. 174). Whether this could also account for the total lack of medieval and post-medieval votive finds so far is difficult to tell.

Addressing methodological issues

Interdisciplinary long-term approaches to place meanings are rare and those that do exist are monodisciplinary history studies (e.g. Corbin, 2010). Our method has the potential to transcend limited or one-sided views of place meanings of a particular landscape type. Yet, there are several limitations to this approach. We will discuss four of these.

Firstly, archaeological evidence from Dutch bogs (generally subject to earlier large-scale peat exploitation than elsewhere in Europe) hardly allows to make inferences about place meanings such as beauty, biodiversity, attachment, admiration, and even functionality. It is possible that these place meanings also pertained to prehistory and early history, but the available data do not allow to specify their role.

Secondly, other scholars might prefer to query the source materials in an open-ended way rather than to search for predefined place meanings. The former might indeed have yielded additional bog place meanings. However, our study did not aim at providing an exhaustive overview

of all possible meanings, and the eight place meanings we studied together cover a varied range of meaning dimensions that we assume to be largely complete. In addition, applying different open-ended approaches for three disciplinary contributions would likely have hampered the potential for comparisons.

Thirdly, for practical reasons, we excluded some potentially relevant source categories from the historical analysis. One of these was toponyms. A previously unpublished analysis of a late eighteenth-century military topographical map concerning the north-eastern part of the Dutch Bourtanger Moor region ([Supplementary Appendix 3](#)) showed that toponyms reflecting functional place meanings (in relation to economic use and accessibility of the bog landscape) were by far dominant. Similar pictures emerge from published toponym records of the Belgian Hautes-Fagnes (Collard & Bronowski, 1993) and south German Murnauer Moos bog areas (Strohwasser, 2018). Although folk stories in the oral history sources introduced some elements of fiction in our analysis, the exclusion of genuine fiction sources was purposeful. We were primarily interested in 'factual' place meaning patterns as derived from people using and crossing bog landscapes, often on an everyday basis. Yet, we are aware that fiction literature and other artistic expressions may have influenced people's perceptions of bog landscapes, and other studies clearly show the potential interest of fiction sources for bog place meaning research (e.g. Meredith, 1999; Gearey et al., 2020).

Fourthly, our aim was to identify spatiotemporal rather than social group-related patterns in past bog place meanings. Nonetheless, the historical cases we presented of smugglers and peat workers intimately familiar with the bog landscape and using that landscape to their advantage in conflicts with authorities are interesting examples of social differentiation transcending the level of merely different place meanings to the level of (subversive) actions. These outcomes align with those of Pungas-Kohv et al. (2015, p. 247) and Rotherham (2020, pp. 83–84) for peatlands across Europe, which since late medieval times functioned as human refuge sites to escape from (repressive) authorities or war events.

Placing the outcomes in the context of previous studies

The pattern of plurality, ambiguity, and nuance in bog place meanings that we found aligns with previous, disciplinary diverse work (Byg et al., 2017; Flint & Jennings, 2022; Jedwab, 2020; Pungas-Kohv et al., 2015, pp. 254–256). It is clear that the negative stereotype of bogs as dangerous, sterile, and inhospitable environments does not correspond to reality, either in the past or at present.

But why has this clichéd image proved so persistent? Two historiographical analyses of bog landscapes in the southern Low Countries show that nineteenth-century writings have been influential in establishing this clichéd image for two reasons. First, while reaching a wider audience than previously possible, these writings often painted a romantic and exaggerated picture of a dangerous wilderness (Nekrassoff, 2007, pp. 115–116). Second, part of their authors supported a contemporary political agenda of wetland reclamation (Jedwab, 2020, p. 924). Next to influential nineteenth-century publications, orally transmitted folklore may also have contributed to the persistence of negative bog stereotypes within local communities (cf. Pungas-Kohv et al., 2015, p. 247). In addition to these explanations, our study emphasises the role of the physical bog landscape as a determinant of contrasting place meanings that could sustain negative clichés about bogs.

Societal relevance and perspective

In bog management and restoration projects across the Netherlands and Europe at large, hydrological and ecological goals are still leading drivers of engagement with and activities in bog

landscapes. While years of experience with such measures render many bog restoration projects promising, successful restoration usually demands significant measures to be taken around the nature reserves. These include elevating groundwater levels and conversion of agricultural land into wet buffer zones. These requirements often cause tension or conflict between nature conservancy organisations or government bodies on the one hand and local farmers and residents on the other (Bal, 2019, pp. 338–339). Several studies have signalled that for long-term success of peatland conservation, it is vital to pay attention to place meanings and perceptions as present among local stakeholders or the broader public (Byg et al., 2017; Flint & Jennings, 2022; Jacobs & Buijs, 2011). Our study underlines this need by highlighting the long and complex history of human usage and perceptions of bogs. While we found largely similar place meaning patterns between different bog areas, Flint and Jennings (2022, p. 176) stress the varied local contexts between sites: '[...] there is no single story of the perceptions of peatlands and their heritage, therefore approaches to reconcile and create a dialogue between different views is likely to be highly contextual.'

Conclusions

This study contributes to a nuanced understanding of place meanings of Dutch bog landscapes from prehistory to present, beyond persistent negative stereotypes of bog landscapes. Our innovative method is promising through its potential to transcend limited or one-sided views of place meanings of a particular landscape type. Limitations to this approach included epistemological as well as practically determined constraints. Virtually all predefined place meanings (attachment, beauty, biodiversity, functionality, risk, admiration, historicity, and mystery) were found in late modern and present-day material. In older periods, functionality, risk, and mystery stood out. Daytime/night-time differences explained the co-existence of paradoxical meanings. Physical bog landscape characteristics were important place meaning determinants, and similar meaning patterns across bog areas underlined this. The long co-existence of the meanings of mystery (and risk) alongside functionality may explain the persistent popularity of negative clichéd images about bogs. Our study provides knowledge that can be used to address the much-stated need for greater involvement of local stakeholders' visions and perceptions to contribute to successful bog management and restoration in the longer term.

Notes

1. The Low Countries roughly coincided with the present-day Netherlands, Belgium, and Luxembourg.
2. 'Mythical' is a more common term in archaeological literature.

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