Crowdsourcing cultural heritage: public participation and conflict legacy in Finland

Oula Seitsonen

Published online: 10 Jan 2017.

Submit your article to this journal ↗

Article views: 336

View related articles ↗

View Crossmark data ↗

Routledge
Taylor & Francis Group

Crowdsourcing cultural heritage: public participation and conflict legacy in Finland

Oula Seitsonen

Lapland's Dark Heritage, University of Helsinki, Finland

ABSTRACT

Following a recent worldwide boom in the democratization of knowledge, crowdsourcing and Participatory GIS, heritage practice increasingly draws on crowdsourced geographical data. In this paper, I discuss a public crowdsourcing of twentieth century conflict heritage in Finland, launched by state-owned broadcasting company *Yleisradio*. Here emphasis is on analysing the user behaviour and incentives, which can inform analogous future initiatives. Many of the public entries mirror local perspectives on conflict heritage: pride of personally important loci and self-satisfaction appear to be important incentives for taking part. Finally, I summarize themes that other heritage crowdsourcing organizers could apply to their work.

Introduction

Citizen science and information democratization have enjoyed a worldwide boom, and, within them, online content crowdsourcing is a constantly growing sub-field. Geographic Information Systems (GIS) and spatial data form an integral part of this phenomenon, closely tied to the increasing use of smartphones with user-friendly map-interfaces. OpenStreetMap® is one impressive example of user-generated geographic content (www.openstreetmap.org). Crowdsourced geographic information is increasingly applied in research and development, for example in environmental assessments (Goodchild 2007; Pánek 2011), and lately cultural heritage crowdsourcing projects have also been developed (Purser 2012; Ridge 2014).

Here I discuss conflict heritage crowdsourcing in Finland, based on public responses to a request published in a news website of the state-administrated broadcasting company *Yleisradio* (Yleisradio [YLE] 2014a). My analysis contributes to ongoing discussions on public participatory behaviour and incentives, especially in cultural heritage. I will offer methods and recommendations for organizing analogous community initiatives online, which is nowadays technically relatively straightforward. First, I present the framework of Participatory GIS and crowdsourcing, after which I discuss the status of conflict legacy in Finnish heritage management policy, and the news articles that formed the basis of the YLE crowdsourcing. Then I examine user behaviour and motivations, reflect upon the final YLE articles, and assess emerging themes based on spatial analyses and topic modelling. The data also highlights public perceptions of conflict heritage which differ from the 'authorised heritage discourse'[1] (Smith 2006), in this case the official state-managed view on heritage. Although in-depth analyses of alternative ontologies are beyond the scope of this paper, I will touch upon these as

CONTACT Oula Seitsonen ✉ oula.seitsonen@helsinki.fi

they relate to participatory incentives. Finally, I summarize general concepts that appear borrowable for organizing cultural heritage crowdsourcing.

Participatory GIS and crowdsourcing

Public Participatory Geographical Information Systems (PGIS) have developed as part of the ongoing so-called Web 2.0 phenomenon of increasingly user-generated content (Goodchild 2007). PGIS refers to participatory mapping or, more broadly, to participatory creation of geo-spatial information. It closely relates to the emergence of citizen science and the democratization of knowledge, as utilized and generated by non-experts (Hudson-Smith et al. 2009: 524). Information for PGIS can come from various sources, including crowdsourcing ('crowd' + 'outsourcing', or information or ideas created by a large group of people, typically online volunteers). Wikipedia is the most remarkable example of this (www.wikipedia.org) because volunteer contributors create and maintain an online 'encyclopedia'; however, its democracy has been contested (Peterson 2013). Researchers increasingly apply web-based crowdsourcing to research-related issues, including, for instance, community empowerment (Pánek 2011). Heritage crowdsourcing projects have so far typically concentrated on intangible heritage and collections-related tasks (Noordegraaf, Bartholomew, and Eveleigh 2014). Although heritage workers have employed limited PGIS crowdsourcing, cases thus far appear promising (e.g. Council for British Archaeology 2006; Field Expedition Mongolia 2012; Megalithic Portal 2016). The conflict legacy data I discuss here represents another example.

Motivations to participate in crowdsourcing are manifold, personal and open to further scrutiny (Haklay 2013). The following broad incentives have emerged in research: intellectual stimulation, gaining personal reputation/social reward, personal/professional interest/advantage, and pride of place (Coleman, Georgiadou and Labonte 2009; Raddick et al. 2010). A survey amongst OpenStreet-Map® users in Finland shows that the last two motives are essential (Välimäki 2011). Participation in crowdsourcing can also create cultural and social capital (Bourdieu 1986), including building reputation within a user-community in a participatory economy (Lietsala and Sirkkunen 2008: 84). In cultural heritage this ties closely with heritage ownership and cultural citizenship (Murzyn-Kupisz and Działek 2013).

Some crowdsourcing projects have employed user-interface 'gamification' to motivate participants, typically by creating online games to complete tasks (Eveleigh et al. 2013), which von Ahn and Dabbish (2008: 58) describe as 'games with a purpose'. For example, the Finnish National Library had a successful gamification endeavour in 2011–2012 when, by participating in online games, over 110 000 participants corrected text identifications on digitized documents (Chrons and Sundell 2011). Critics have recently questioned user-interface gamification (Bogost 2015), suggesting that differently motivated people might have conflicting expectations from the games: some enjoy leisurely fun, while others expect scientific context for their tasks (Randall 2015). However, critics have yet to recommend alternatives for triggering online participation, especially for more time-consuming assignments.

National context and Yleisradio conflict heritage crowdsourcing

Yleisradio (YLE) has lately developed data-journalism[2] and also opened their data for research and commercial purposes. Generally, Finns are fascinated by their war history, especially by the Second World War (WWII), which forms an integral part of the acknowledged national narrative (Kivimäki 2012). However, despite public interest, most 20th-century conflict heritage in Finland lacks official status. The Finnish Antiquities Act protects 'Ancient monuments' (Fi.: 'muinaismuisto') as maintained by the National Board of Antiquities (NBA). The NBA has only recently started to acknowledge the importance of twentieth century material heritage, whilst the public has also increasingly become interested in more recent sites (Enqvist 2014; Seitsonen and Herva 2011; Thomas, Seitsonen, and Herva 2016). The NBA recognizes selected First World War (WWI) and WWII sites as 'Nationally important built cultural environments' (Fi.: 'valtakunnallisesti merkittävät rakennetut kulttuuriympäristöt'), which are noted in land-use and planning, but not automatically protected (Enqvist 2014). These

are typically defensive structures, and include trenches and bunkers related to the national narrative of WWII, such as the so-called Salpa Line defences along the eastern border (Lagerstedt 2012). However some stakeholders, most importantly the state-owned forest administration agency *Metsä-hallitus*, have decided to recognize all heritage on their land regardless of age, including story sites and sacred natural localities (Taivainen 2013). The NBA classifies these sites into a recently added vague category of 'other cultural heritage site' (Fi.: '*muu kulttuuriperintökohde*'), 'resembling' official heritage, but not protected by the Antiquities Act. Enqvist (2014) has noted the necessity for fundamental re-evaluation of the roles and definitions of protected heritage in Finland, and called for a multi-vocal 'democratized heritage discourse'. I argue here that PGIS and crowdsourcing could offer potential avenues for advancing this discourse, if developed further.

The conflict heritage crowdsourcing I discuss here was initiated by an YLE website article: 'Mark on the map – Where are the wars of Finland visible?' (YLE 2014a; my translations from Finnish). YLE's motivation for launching their crowdsourcing was to compile a miniseries of articles based on user-generated content. The introductory article started with a quote, 'History is everywhere', from Lauri Haavisto of the Finnish War Museum (YLE 2014a). Then YLE journalists recapped the variety of conflict sites beyond the battlegrounds, mentioning that WWII sites are located throughout the country although most of the battlefields lie east of the modern border, and suggesting caution due to unexploded ordnance (UXO) still found in the landscape. An interactive Google Maps-based user-interface accompanied the article (Figure 1). Participatory users could easily mark their point(s) of interest (I use POI here as both singular and plural), write descriptions, attach photographs, or leave replies. Markings in the conflict site database (CSDB) are anonymous and YLE did not record any identifying information about individual users. For analysis and quotation purposes, I translated database entries into English.

Crowdsourcing behaviour in the CSDB

Understanding and anticipating user behaviour and incentives is imperative when planning crowdsourcing projects and assessing their utility. For instance, user reachability has an obvious effect on
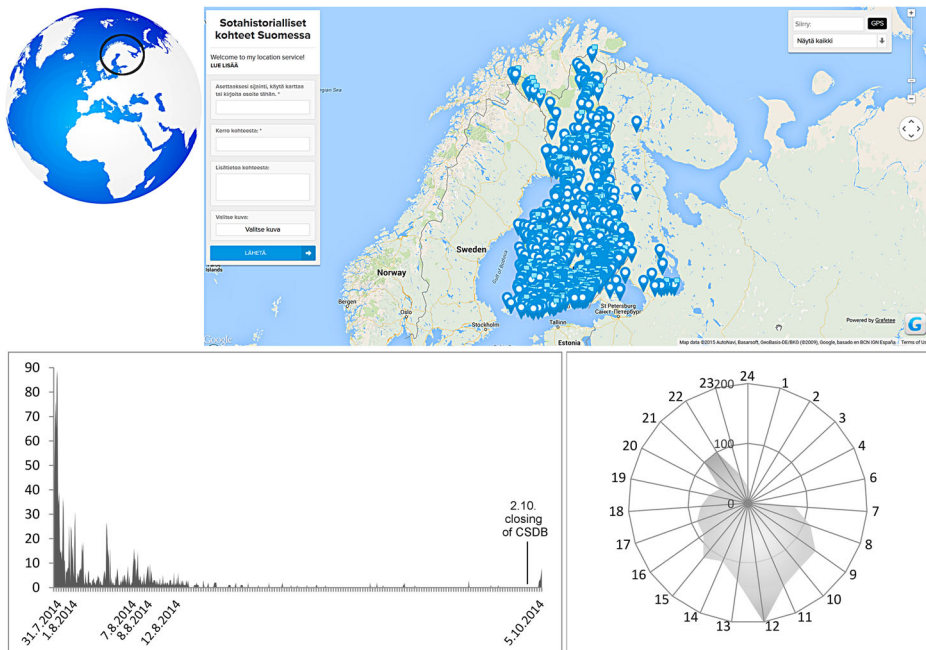

Figure 1. Top: YLE PGIS user-interface; bottom left: data entries by the hour, publication dates of the related YLE news articles shown below the axis; bottom right: data entries by the hour of day (illustration: O. Seitsonen 2015).

the success of any crowdsourcing effort. Based on the international Digital News Report (DNR), news websites offer an excellent forum for reaching wide audiences in Finland, and online media is today the most widely utilized news source (Reunanen 2015: 3). YLE has been in the five top ranking online media in Finland since 2005 (Saikkonen and Häkämies 2014: 21, 28) and its website reaches about 40 per cent of Finland's adult population (Reunanen 2015: 27), i.e. 1.5–2 million readers weekly (TNS Gallup 2015).

The CSDB records the time of participant entries on the map, allowing closer scrutiny of the process (Figure 1; Supplementary Material 1–2). YLE posted their map on the morning of 31 July 2014, and entries appeared almost immediately. Almost 200 markings appeared from 11 am to 1 pm, and 50 per cent of nearly 2000 entries were made during the first 3 days. Each follow-up article indicates increased user activity (Figure 1). The CSDB closed on 2 October 2014, but the map has continued its life as a 'ghost website' where people occasionally mark POI, especially on 5 October 2014 with the publication of final YLE articles (YLE 2014b, 2014c).

Initially, markings appeared on the map every hour, concentrating around noon. This behavioural pattern waned after 10 days, and later entries took place typically around noon, feasibly during the lunch break, and in the early evening, after working hours (see Neis and Zipf 2012). The recorded midday peak contradicts with the general Finnish online media activity pattern: news websites are most actively visited in the early morning and their usage is lowest around noon (Reunanen 2015: 15–16). Mirrored against these DNR statistics, it seems clear that the participants visited the YLE webpage deliberately to contribute to the crowdsourcing.

Contributors typically reacted when prompted by follow-up articles, often with short-term engagement, apparently marking a few POI when they had free time. In the DNR survey nearly half of the Finnish respondents reported that they respond to social media newsflashes or alerts by email and SMS (short message service) (Reunanen 2015: 18). This reflects overall trends in crowd-sourcing and in social media, where user activity is often dependent on media attention, social media newsfeeds, and 'news beeps' as triggers (Causer and Wallace 2012; Chrons and Sundell 2011; Zarndt 2012).

The public marked 1738 separate POI on the map over 2 months. Several POI indicate numerous sites, and replies described additional sites, so the overall number of localities is higher. Over 1100 entries attracted replies, typically more detailed descriptions, but also debates about terminology, for example: 'Not the War of Freedom, but the Civil War'[3] (referring to the traumatic Finnish Civil War of 1918). Others questioned the accuracy of entries: 'Just a normal shooting range. Not related to the Wars'.[4] Participants attached photographs to 256 entries, showing mostly modern views with visible structures such as bunkers, but some also posted wartime photographs to their approximate locations[5] (Figure 2).

Locational information of most entries is rough, perhaps owing to the generalized background map: spatial analysis of a sample of identifiable localities showed that only around 10 per cent of user POI were within 500 m of their actual location. However, this inaccuracy might reflect a deliberate user-activity, since I found about a dozen people speculating in web-discussions whether marking the exact sites made the map a guide for 'treasure hunters'. In contrast, in Finland the NBA openly publishes archaeological site locations, which suggests intriguing perspectives on the public perceptions of heritage ownership. Our research suggests that many enthusiastic locals see themselves as custodians of their own past, feeling that the authorities often neglect it (especially in northern Finland), and thus wish to control access and engagement with sites in their local landscape (Herva et al. 2016).

Reflections on the final YLE article

YLE published their final news article based on the crowdsourcing project on 5 October under the title 'Finland full of military history. Six stories from the Finnish Wars – Public wrote war history':

Figure 2. Top: wartime photograph uploaded by a public user to the CSDB with the description: 'Destroyed tank in the photograph SA-kuva 26570 on the Enso Road in Jakola. Scenery with the buildings is still easily recognisable' (original caption: 'Russian tank has driven into a mine'/photograph: A. Viitasalo/SA-Kuva 26570/Ensontie, Jakola/3.7.1941); bottom: modern view of the same place in the Google Street View.

'… nearly two thousand observations and stories accumulated on the map' and the article describes the '… six most interesting …' (YLE 2014c):

1. Toilet visit saved life
2. Unknown dog tag
3. Finnish concentration camps
4. May Day in Porkkala
5. 'Brothers lost their fingers'
6. Prepared for hell

Five of these stories relate to WWII, which in the Finnish context roughly divides into four phases:

- 1939–1940 'Winter War': a conflict between Finland and the Soviet Union;
- 1940–1941 'Intermediate Peace': Finland granted Nazi Germany transit rights to occupied Norway;
- 1941–1944 'Continuation War': Finland attacked the Soviet Union alongside Germany and became a co-belligerent of Nazi Germany (*de facto* ally);
- 1944–1945 'Lapland War': a cease-fire treaty between the Soviet Union and Finland demanded Finns to drive out their former German allies, resulting in a Finno-German conflict.

Two of the stories above narrate the Winter War (#1–2), one the Continuation War (#3), and two the post-WWII years, nonetheless closely tied to WWII (#4–5). The first post-WWII story (#4) reminisces about the 'lease area' of Porkkala, occupied by the Soviet Union 1944–1956 near Helsinki, and the other (#5) childhood games with UXO. Interestingly (from a tangible heritage perspective) one of the stories (#2) deals with a metal detectorist's find, mirroring the rise of this hobby in Finland (Maaranen 2016). Several entries mention metal detecting.[6] The only exception to the emphasis on WWII-era is a story connected to the Finnish Civil War (#6). This was a traumatic episode for the newly independent state. Independence was declared in December 1917 and in January 1918 fighting broke out between right-wing-minded White Guards, ultimately backed by an Imperial German expeditionary force, and leftist Reds, supported by Red Russians. The frontlines and situation were by no means clear-cut, and the Civil War resulted in long-lasting national tensions (e.g. Haapala and Hoppu 2009; Seitsonen and Kunnas 2009).

Following the POI, the YLE journalists concentrated on the twentieth century conflicts. However, they apparently deliberately did not reproduce 'gallant' WWII histories, but included more controversial and difficult subjects, which mirror a minor yet exciting portion of the user entries. Stories (#3) and (#6) are associated with atrocities or even war crimes that Finns committed. The Civil War story (#6) narrates the so-called White-terror: executions and concentration camps of the defeated Red Guards and their families after the war (Tikka 2009). The other story (#3) recalls the Finnish-run concentration camps for 'non-ethnic' civilians in occupied Russian Eastern Karelia, 1941–1944, which confined women, children and elderly and used them as forced labour under poor conditions (Laine 1982: 116). Only one of these camps is within Finland's contemporary borders: the NBA recognizes the camp as 'other cultural heritage site/fortifications/trenches', since part of the WWII Salpa Line passes next to it (National Board of Antiquities [NBA] 2012a). Finnish-run concentration camps remain a debated, under-researched topic (Laine 1982), and as such are analogous to the German-run Prisoner-of-War (PoW) camps in Lapland in 1941–1945 (Westerlund 2008; see below). Both of these are important (although complex, painful and understudied) themes of Finnish participation in WWII, and merit greater awareness. It seems encouraging that the public has marked them in the crowdsourcing.

Spatial coverage of the CSDB

Participatory user entries cover Finland and beyond: the POI farthest into modern-day Russian territory follow the south-eastern margin of the Continuation War front in 1941–1944 (Figure 3; Supplementary Material 2). Spatial distribution leans towards the most populated areas in southern Finland. Clusters associated with region-specific themes exist, such as the WWI fortification chain around Helsinki, protected as an 'ancient monument' (Figure 3a:1; Lagerstedt 2014) and the WWII Salpa Line in south-eastern Finland, partly recognized as 'other cultural heritage sites' by the NBA (Figure 3a:2; Lagerstedt 2012).

However, as noted earlier, many POI contradict 'authorised heritage discourse' (Smith 2006) themes in Finland, and emerge as locally important. For example, the substantial German presence in the northern half of the country in 1940–1945 is conspicuous. The second densest concentration of marked sites (Figure 3a:3) relates to German activities, and over 50 per cent of the POI in northern Finland are affiliated with the Germans (Figure 3b). Of the three densest clusters in Figure 3a only the northern German sites experienced notable military action. Helsinki fortifications saw sporadic combat during the Civil War, whereas the Salpa Line was never used, although kept operational throughout the Cold War (Lagerstedt 2012). The latter are well-preserved, conspicuous landmarks in their local scenery. Conversely, practically all the German sites were demolished in 1944. Their remains are typically imperceptible, ephemeral, and require expert local knowledge (Seitsonen and Herva 2011).

In the later part of WWII, over 200 000 German soldiers and their prisoners were stationed in Finland's sparsely populated north. Military historical accounts mostly recall the Finno-German Lapland
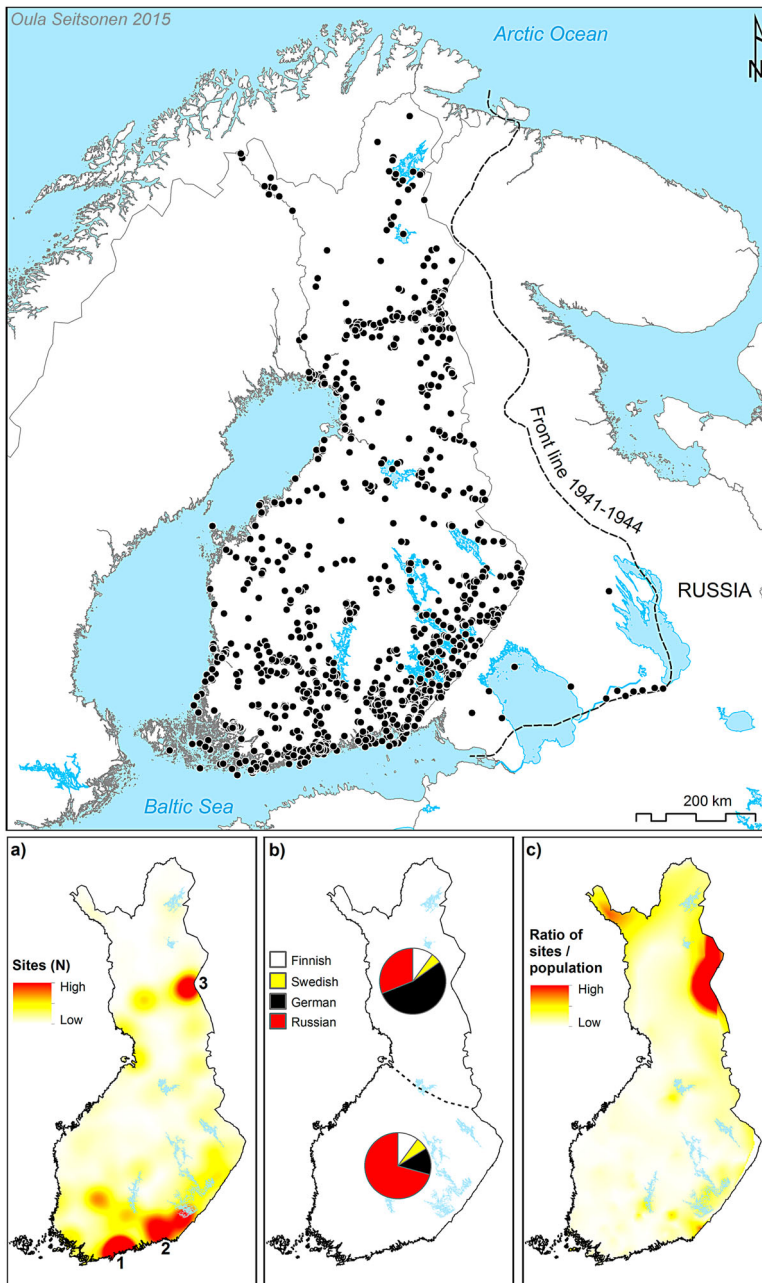
Figure 3. Top: spatial coverage of the CSDB, the Continuation War front shown as a dashed line; bottom: (a) Kernel Density Estimation of CSDB entries (densest concentrations 1–3); (b) entries affiliated to nationalities in north and south; (c) ratio of the entries/population (illustration: O. Seitsonen).

War (e.g. Ahto 1980), while the peaceful Finno-German co-existence in 1940–1944 (which gives a distinct character to Lapland's tangible and intangible legacy) has had little recognition until recently (Tuominen 2015). Despite the contradictory *Waffenbrüder*-cum-enemies status of the Germans, POI related to Germans were not characterized as negative, which is also evident in interviews with elderly people (Herva et al. 2016). The amount of German-related sites marked in the crowdsourcing clearly demonstrate this period's importance for the locals as part of their living communal legacy, yet

currently the ruined military installations lack heritage status and are open prey for memorabilia hunters (Thomas, Seitsonen, and Herva 2016). The post-war story (#5) of experiences with UXO also recalls the central place of explosives and destruction as agents of communal remembrance of WWII in Lapland (Seitsonen and Herva in press [2016]).

The spatial distribution of the entries, mirrored against the nation's population reverses the north-south contrast, and the thinly-populated northern and eastern parts of the country stand out (Figure 3c). Based on insider knowledge and familiarity with the landscape, many users obviously marked locations personally known and important to them. Pride of place (Coleman, Georgiadou and Labonte 2009: 343–44) appears as a recognizable motivation for participating in the crowdsourcing. Since YLE collected no identifying user information, users had no direct personal gain, such as building reputation or self-promotion. This suggests that self-satisfaction and building of indirect cultural and social capital through community promotion were main user incentives (Olsson 2010).

Emergent themes based on topic modelling

I analysed emerging themes in the CSDB using topic modelling (an important method in digital humanities[7]) for querying textual datasets. Topic models apply various algorithms to query underlying thematic structures (Schmidt 2012; Schreibman, Siemens, and Unsworth 2016). Detailed discussion of topic modelling is beyond the limits of this paper, but I used it to group entries into various thematic and temporal categories, and trying to separate the sole active users (based on geographic location, time-stamp, and theme).

I also examined the trending and combinations of various themes throughout the crowdsourcing. Even though there are no clear space-time trends, the neighbouring POI on analogous topics were often marked temporally close to each other, probably by the same active users. Conversely, entries made in some area or theme attracted later similar entries by other users. Chrons and Sundell (2011), Causer and Wallace (2012), Bonacchi et al. (2014), and Noordegraaf, Bartholomew, and Eveleigh (2014) have recorded that a handful of active users typically produce most of the contents, following the Pareto principle, often called the 'law of the vital few' or '80–20 rule'. This is evident in the CSDB based on the spatio-temporal distribution, phrasing, and themes of entries.

The final YLE articles (YLE 2014b, 2014c) mirrored the thematic and spatio-temporal composition of user entries, although journalists chose to highlight provocative, anomalous, and 'newsworthy' subjects. In particular, as shown in Figure 4, the POI affiliated with the Russians and Germans stand out. Russians have been profiled as the 'archenemy' of Finnish people since the turn of the twentieth century as part of the constructed national story (Vihavainen 2013), which is also reflected in the selected (often negative) user-phrasing. However, locals also remember WWII Soviet PoWs and what happened to them, especially in northern Finland. More neutral user phrasing about Germans relates to their close involvement in the Finnish Civil War (1918 stands out in the entries; Figure 4) and in Lapland during WWII.

Simple defensive structures and battlefields form about one-third of the CSDB (686 POI; 319 related to WWII) (Figure 5). These are the kind of localities that the NBA recognizes as 'nationally important built cultural environments'; the Salpa Line is the only named military installation that stands out. Temporally the WWII-era dominates the database, augmented by the original YLE article. It is followed by the Civil War and themes related to the imprisonment, shooting and mass graves of defeated Reds in its aftermath. Nearly two thirds of replies were posted to WWII-era POI, followed by those to Civil War-era POI, suggesting the users saw these themes as worth debating and detailing.

Over 300 entries relate to more controversial sites, typically based on local knowledge and folklore. These include, for instance, imperceptible bombing sites in forests, shrapnel and bullet holes on buildings, UXO find locations, and even ghost stories (Figure 5). A third of these relate to perceptibly painful issues such as execution places, mass graves, internment camps, and contested Red-related Civil War memorials. Civil War sites associated with the White-terror are more common than the other
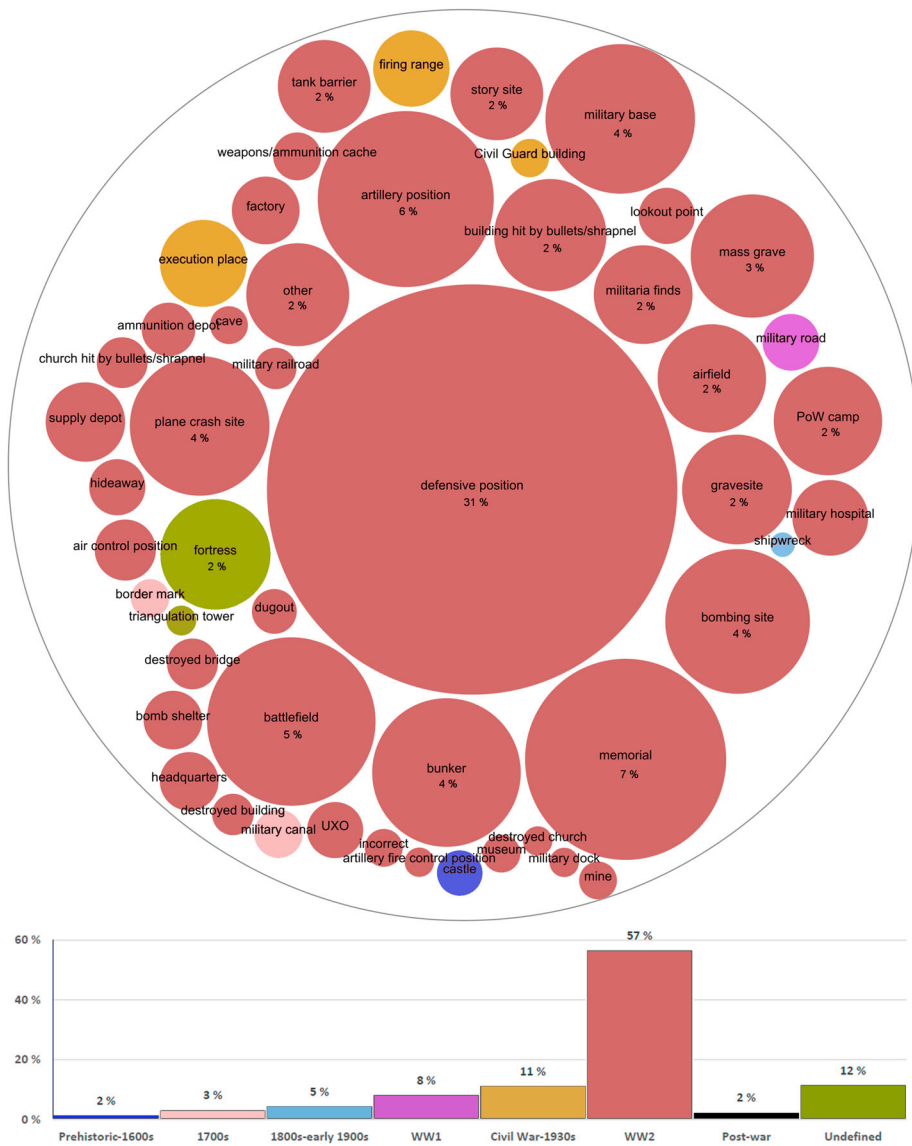
Figure 4. Word cloud of frequencies of terms from user entries in the CSDB (illustration: O. Seitsonen).

way around: the Red-terror was sporadic and disorganized, whereas the White-terror took planned, State-wide forms after the war (Tikka 2009).

Lastly, I highlight selected POI: although somewhat anecdotal, these illustrate the character of user entries. Aside from the dominance of Civil War and WWII, older localities form less than one-fifth (18 per cent) of the CSDB (Figure 5). These range from Prehistoric sites, through the 1500s–1700s, to Russian fortification efforts in the turn of twentieth century and WWI. POI related to earlier times often reflect the local folklore and differ from the protected archaeological sites. Two notorious periods of Finnish history stand out amongst these, namely the 'Cudgel War' (a defeated peasant revolution of late 1500s), and the 'Great Wrath' (a catastrophic Russian occupation in the early 1700s). The former is spatially confined to the coastal Ostrobothian region, where most of the fighting took place, and is still recalled in folklore and public commemorations. Entries associated with the 'Great Wrath' typically mark deaths of Russian soldiers, such as a 'Russian Rock', where according to stories a Russian war band sank through the thin ice in 1712,[8] or a locality where an obscure carving on a rock is said to be related to a grave of Russian warlord.[9] Communal memories characteristically link distinctive historical sites with painful incidents (Fengqi 2009), no matter how fabricated these links might be, and memories of disastrous incidents can live for centuries. For instance, local communities often associate old, forgotten cemetery islands with visible grave pits with burying Russian soldiers during the 'Great Wrath'[10] (Ruohonen 2005).

On a lighter side, one user felt it important to mark 'Gustav's piss stone' on the map—a locality where, according to a folktale, Swedish king Gustav III relieved himself in 1789.[11] Stories of sites where important people relieved themselves are relatively common in the Finnish countryside. The NBA actually recognizes one as an 'other cultural heritage site', related to a visit by Swedish Queen Lovisa Ulrika in 1752 (NBA 2012b). Many of the entries about the twentieth century also have their roots in folklore.[12] Local narratives provide interpretation and wider context to obscure craters in the woods or holes in walls. An example of personalized, even familial ties is an entry indicating a WWII battlefield in Lapland: 'There is a bullet, shot by the Germans … embedded in a bread skewer at my mother's home … I used to think this was the first shot in the Lapland War'.[13]

Figure 5. Top: frequencies of site types marked in the CSDB; colouring refers to the most common dating (as shown below) linked to a site type by the participatory users; bottom: percentages by date range (illustration: O. Seitsonen).

Folklore-based entries underline the importance of alternative views and ontologies to locals, and are often contradictory to more hegemonic views (Waterton and Watson 2015). Ephemeral bombing sites, shrapnel-ridden buildings, or execution places are not the kind of sites typically recognized in heritage lists. However, intangible heritage behind the tangible remains is essential for people's sense of place and placemaking, and transforms obscure ruins from plain space into meaningful and important localities (De Nardi 2014).

One of the most provocative and controversial POI connected to both intangible and tangible heritage (and to alternative perspectives on archaeology) is at Lappeenranta Huhtiniemi in eastern Finland. Early in the crowdsourcing, on 2 August, a user marked a POI at Huhtiniemi as follows: 'Finnish soldiers slain by the Finns ... kept clandestine and burials have possibly been moved'. Another user reacted to this almost immediately: 'Completely false information. This matter is

resolved, and there is no historical basis to claim that executed Finnish soldiers were buried at Huhtiniemi. Since the case is solved in the light of history, these propagandistic messages should be removed'.[14] The next day another user marked Huhtiniemi on the map, attempting to sort out the confusion of the previous entries:

> erroneous information. No Finnish soldiers murdered by Finns have been buried at this place … an old cemetery of Russian soldiers from the Russian rule in the 1800s. It was thought for long that Finnish deserters had been secretly buried at Huhtiniemi etc., but Etelä-Saimaa [a local newspaper] told the truth a few months ago.[15]

Huhtiniemi was the scene for Finland's first forensic archaeological project in 2006–2007 (Seitso-nen and Holappa 2011), as persistent rumours had circulated in Lappeenranta since WWII of illegitimate mass-executions of Finnish deserters in 1944. Forensic studies showed indisputably that the story was based on skulls encountered from a forgotten 1800s Russian military cemetery, intermingled with recollections of the Civil War-era White-terror, and topped with the memory of the catastrophic loss of the town of Vyborg, southeast of Lappeenranta, in 1944 (Lavento et al. 2007). This is another example of how communal memory attributes material remains to important, tragic and painful memory events. The re-appearance of Huhtiniemi tales reminds us vividly about the responsibility of archaeologists towards the public (Taavitsainen 2012), to prevent the afterlife of repealed stories like Huhtiniemi, in this case haunting an entire nation. The forensic excavations received extensive public attention and media coverage, but it is clearly not enough that a research report was placed in a public repository (Lavento et al. 2007). This has stirred up conspiracy theories and alternative histories, for example in internet discussion forums (e.g. Agricola 2013). Communicating with the public is underdeveloped in Finnish cultural heritage practice, although there are signs of improvement (Enqvist 2014). Heritage professionals have an obvious responsibility to answer the public demand for information on the past: otherwise there is room for conspiracy theories, such as the Huhtiniemi case, or generating alternative histories (see Thomas 2015; Wilson 2012). An unfortunate example of the latter is a recent popular, beautifully illustrated book 'Hushed past' ('*Vaiettu muinaisuus*'), described as 'a summary of our country's ancient history' (Nieminen 2015), but written by an 'alternative' history fanatic who opens his book promptly 'verifying' that the Ice Age never happened. Distressingly, it is more popular at the public libraries than archaeology textbooks.

Final considerations

YLE's conflict heritage crowdsourcing provides interesting examples of public user behaviour, incentives and perspectives on Finnish conflict heritage. Based on the YLE dataset, there is no need to develop gaming-platforms for crowdsourcing simple POI on a landscape level: other incentives seem to provide enough enticement for marking sites on a web map, in itself a straightforward procedure which does not require much time. This kind of modest classification and volunteered computation has been described as Level 1 engagement in citizen science (Raddick et al. 2010). However, many users devoted time in writing detailed descriptions, attaching photographs, and commenting on or correcting other users' POI, which takes their contribution towards the Level 2 participation (Haklay 2013) that entails interpretation and thinking beyond simple classification.

Crowdsourcing participants are often motivated by social capital gain within a user-community (Lietsala and Sirkkunen 2008: 84; Murzyn-Kupisz and Działek 2013). Although the YLE crowdsourcing users were anonymous, many showcased their historical and expert knowledge. Lietsala and Sirkkunen (2008: 84) argued that self-satisfaction and self-esteem provide enough incentive for contributing anonymously, even without guarantees that data will be used. Since numerous CSDB entries rely on local knowledge, improving or changing the (cultural) status of personally important places provided motivation for taking part in this crowdsourcing (Olsson 2010).

CSDB entries also allow alternative counter-heritage perspectives (Waterton and Watson 2015), which contrast with authorized views on heritage. At the moment the twentieth century conflict heritage sites have limited state-sanctioned recognition as heritage and the NBA mostly labels them

under the vague title of 'other cultural heritage sites'. Some stakeholders have exemplarily chosen to recognize and protect a wider array of sites on their own lands than the NBA, taking into account also the intangible heritage (Taivainen 2013).

There are potentially borrowable concepts related to user activity and motivations emerging from the CSDB which can provide guidance when planning or evaluating heritage (and other) crowdsourcing activities (see Howe 2008: 280–88):

1. *Crowdsourcing forum*: The YLE website reaches a wide audience from diverse backgrounds. Reachability and user-profile of the website directs the participatory user-profiles.
2. *User-interface*: The YLE user-interface was very simple and straightforward. If user-interface is user-friendly, people are more likely to contribute at least in Level 1–2 citizen science engagement.
3. *Portraying the subject*: YLE journalists' emphasis on WWII appears to have directed user-entries. Introductory articles direct user behaviour, as people tend to mark analogous sites to given examples.
4. *Promoting endeavours*: Subsequent YLE articles were each mirrored by raised user-activity. Dynamic promotion, such as press releases and/or social media activity, significantly increase participation and data, even from contributors who would not otherwise participate.
5. *Pride of place*: Numerous CSDB entries are based on local knowledge and folklore. Promoting personally important places appears to be a strong motivation at least for Finnish users (Välimäki 2011).
6. *'Law of the vital few'*: Numerous CSDB entries were apparently made by the same users based on their spatio-temporal and thematic distribution and phrasing. Individual, enthusiastic contributors often provide most of the data (Bonacchi et al. 2014; Chrons and Sundell 2011), and thus distort the data. If crowdsourcing is anonymous these users should be spotted when evaluating the data (e.g. with topic modelling) to detect potential (intentional or unintentional) bias.
7. *Anonymity*: as shown by CSDB entries even anonymous users often exhibit their expert knowledge and correct each other's information. People may participate more easily when they can remain anonymous, although users appear willing to authenticate themselves in more dedicated assignments (perhaps through online games), which allows also detailed views on their demography (Chrons and Sundell 2011). Authenticated users may also be motivated to gain social and cultural capital within their user-community.
8. *Gamification*: Recent critics have questioned gamification but in more time-consuming tasks it might encourage people to participate. Different gaming platforms might be needed to motivate people with diverse impetuses (Randall 2015).

Following the YLE initiative described here, I launched a similar effort in our ongoing 'Lapland's Dark Heritage' project, which has so far gained over 300 public entries.[16] I will use this data further to analyse and evaluate PGIS user activity and motivations in heritage crowdsourcing. So far, this new data has revealed interesting perceptions of Finnish conflict heritage, which I aim to compare to the counter-heritage perspectives apparent in the CSDB. I also plan to cultivate user data in both projects by developing a public user-interface with browsable entries (but generalized locations to discourage treasure hunters). We plan to use a specially designed mobile mapping application and the help of volunteer fieldworkers, and thus learn how to deal with multiple public perceptions, including false memories and fringe historical issues, that relate to both tangible, intangible and natural heritage. This will also enable us to field-test the usability of the datasets for site protection, monitoring, research and land-use planning. Altogether we hope to open up fresh viewpoints on the differences between public perceptions and state-recognized heritage, and also allow practical suggestions to alleviate tensions between both.

Acknowledgements

Notes

1. 'Authorised heritage discourse' refers to the hegemonic, typically Western and Eurocentric, perspectives which direct archaeological theory and practice, heritage management and interpretation, and engagements with the public (Smith 2006).
2. Data journalism refers to a wide range of computer-assisted approaches to data collecting, manipulation, analysis, and visualization (Houston 2015).
3. id.b96b98d8-ede2-4ff5-abe1-cd04f15583fb.
4. id.402054b6-ca3b-49a3-816d-d8ff8bcee028.
5. id.a374d5dc-664f-4347-954c-17cd4749b362.
6. id.4a113844-6484-4262-8b85-3069d4ead01c; id.fe4f02b0-db20-451a-8850-b4fef08d5d35; id.957ff00b-76d9-4215-a1b2-b066f8303b5b.
7. Applying computing to tackle humanistic questions (Burdick et al. 2012).
8. id.d685cc3c-4d0d-42a0-8f7f-6faf189121cf.
9. id.7b77e870-039b-4ca5-880c-ebd7f8167a4f.
10. id.da6d52db-3f2c-425b-a06d-410e88d87a61; id. 9efc0eac-39cb-49c9-afce-ef851c4fbb80.
11. id.a39ad65a-0674-4585-8157-55cc7d9c6671.
12. id.66c5d913-738f-4aca-b424-d713790a115a; id.debf4d60-3460-4065-b55d-0a984ea25e37; id.71cac278-1b08-4725-8531-b5c33eba962c.
13. id.51b7ba67-3b58-40f5-97e7-286aabd7378c.
14. id.8b99faad-56eb-4aab-a1ba-3e88543b867e.
15. id.98b87aa1-b8cc-453d-a2ce-f121d32b0437.
16. http://blogs.helsinki.fi/lapland-dark-heritage/lapin-sotahistoriallisia-kohteita.

Notes on contributor

Oula Seitsonen is an archaeologist and geographer working in the project 'Lapland's Dark Heritage: Understanding the Cultural Legacy of Northern Finland's WWII German Materialities within Interdisciplinary Perspective' at the University of Helsinki, Finland.

References

Agricola. 2013. Museovirasto julkisti salatun Huhtiniemen kaivausraportin. *Agricola*, 18 January 2013. Accessed 3 March 2015. http://agricola.utu.fi/keskustelu/viewtopic.php?f=10&t=4960.

Ahto, Sampo. 1980. *Aseveljet vastakkain: Lapin sota 1944–1945*. Helsinki: Kirjayhtymä.

Bogost, Ian. 2015. "Why Gamification is Bullshit." In *The Gameful World. Approaches, Issues, Applications*, edited by Steffen P. Walz & Sebastian Deterding, 65–80. Cambridge/London: MIT Press.

Bonacchi, Chiara, Andrew Bevan, Daniel Pett, Adi Keinan-Schoonbaert, Rachael Sparks, Jennifer, Wexler, and Neil Wilkin. 2014. "Crowd-sourced Archaeological Research: The MicroPasts Project." *Archaeology International* 17: 61–68.

Bourdieu, Pierre. 1986. "The Forms of Capital." In *Cultural Theory: An Anthology*, edited by I. Szeman and T. Kaposy, 81–93. Oxford: Wiley-Blackwell.

Burdick, Anne, Johanna Drucker, Peter Lunenfeld, Todd Presner, and Jeffrey Schnapp. 2012. *Digital_Humanities*. Cambridge/London: MIT Press.

Causer, Tim and Valerie Wallace. 2012. "Building a Volunteer Community: Results and Findings from Transcribe Bentham." *Digital Humanities Quarterly* 6 (2). Accessed 1 May 2016. http://www.digitalhumanities.org/dhq/vol/6/2/000125/000125.html.

Chrons, Otto and Sami Sundell. 2011. "Digitalkoot: Making Old Archives Accessible Using Crowdsourcing." In *Human Computation: Papers from the 2011 AAAI Workshop (WS-11-11)*, edited by L. von Ahn and P. G. Ipeirotis. Accessed 7 January 2014. http://www.aaai.org/Library/Workshops/ws11-11.php.

Coleman, David, Yola Georgiadou and Jeff Labonte. 2009. "Volunteered Geographic Information: The Nature and Motivation of Producers." *International Journal of Spatial Data Infrastructures Research* 4: 332–358.

Council for British Archaeology. 2006. *Defence of Britain Archive*. York: Archaeology Data Service. Accessed 1 May 2016. http://archaeologydataservice.ac.uk/archives/view/dob/index.cfm.

De Nardi, Sarah. 2014. "Senses of Place, Senses of the Past: Making Experiential Maps as Part of Community Heritage Fieldwork." *Journal of Community Archaeology & Heritage* 1 (1): 5–22.

Enqvist, Johanna. 2014. "The New Heritage: A Missing Link Between Finnish Archaeology and Contemporary Society?" *Fennoscandia Archaeologica* 31: 101–123.

Eveleigh, Alexandra, Charlene Jennett, Stuart Lynn, and Anna L. Cox. 2013. ""I Want to be a Captain! I Want to be a Captain!": Gamification in the Old Weather Citizen Science Project." In *Gamification 13: Proceedings of the First International Conference on Gameful Design, Research, and Applications*, 79–82. New York: ACM Press.

Fengqi, Qian. 2009. "Let the Dead be Remembered: Interpretation of the Nanjing Massacre Memorial." In *Places of Pain and Shame: Dealing with 'Difficult' Heritage*, edited by William Logan and Keir Reeves, 17–33. London: Routledge.

Field Expedition Mongolia. 2012. *Map Explorer. Field Expedition: Mongolia, National Geographic*. Accessed May 1 2016. http://exploration.nationalgeographic.com/mongolia/home.

Goodchild, Michael F. 2007. "Citizens as Sensors: The World of Volunteered Geography." *GeoJournal* 69 (4): 211–221.

Haapala, Pertti and Tuomas, Hoppu. 2009. *Sisällissodan pikkujättilainen*. Helsinki: WSOY.

Haklay, M. 2013. "Citizen Science and Volunteered Geographic Information – Overview and Typology of Participation." In *Crowdsourcing Geographic Knowledge: Volunteered Geographic Information (VGI) in Theory and Practice*, edited by Daniel Sui, Sarah Elwood, and Michael Goodchild, 105–122. Berlin: Springer.

Herva, Vesa-Pekka, Eerika Koskinen-Koivisto, Oula, Seitsonen, and Suzie, Thomas. 2016. "I Have Better Stuff at Home": Alternative Archaeologies and Private Collecting of World War II Artefacts in Finnish Lapland. *World Archaeology* (online first).

Houston, Brent. 2015. *Computer-Assisted Reporting: A Practical Guide*. New York: Routledge.

Howe, Jeff. 2008. *Crowdsourcing: Why the Power of the Crowd is Driving the Future of the Business*. New York: Crown Publishing.

Hudson-Smith, Andrew, Michael Batty, Andrew Crooks, and Richard Milton. 2009. "Mapping for the Masses: Accessing Web 2.0 through Crowdsourcing." *Social Science Computer Review* 27 (4): 524–538.

Kivimäki, Ville. 2012. "Between Defeat and Victory: Finnish Memory Culture of the Second World War." *Scandinavian Journal of History* 37 (4): 482–504.

Lagerstedt, John. 2012. *Salpalinja. Sotahistoriallisten kohteiden arkeologinen inventointi 2009–2012*. Research Report, National Board of Antiquities. Accessed 1 May 2013. http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/mjhanke/read/asp/r_hanke_rapo_det.aspx?HANKE_ID=9611.

Lagerstedt, John. 2014. *Viaporin maarintama*. Helsinki: Helsingin kaupunginmuseo.

Laine, Antti. 1982. *Suur-Suomen kahdet kasvot. Itä-Karjalan siviiliväestön asema suomalaisessa miehityshallinnossa 1941–1944*. Helsinki: Otava.

Lavento, Mika, Helena Ranta, Antti Sajantila, and Erkki Vuori. 2007. Lappeenrannan Huhtiniemen arkeologiset ja oikeuslääketieteelliset tutkimukset. Raportti kenttätutkimuksista (1.10.–27.10.2006) ja jälkitöistä. Research report, University of Helsinki. Accessed 1 April 2007. http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/mjhanke/read/asp/hae_liite.aspx?id=114860&ttyyppi=pdf&kunta_id=405.

Lietsala, Katri, and Esa Sirkkunen. 2008. *Social Media: Introduction to the Tools and Processes of Participatory Economy*. Tampere: Tampere University Press.

Maaranen, Päivi. 2016. "Metal Detecting and Archaeology in Finland: An Overview of the Hobby and its Consequences." In *New Sites, New Methods. Iskos 21*, edited by Pirjo Uino and Kerkko Nordqvist, 273–284. Helsinki: SMY.

Megalithic Portal. 2016. *The Megalithic Portal*. Accessed 1 May 2016. http://www.megalithic.co.uk/index.php.

Murzyn-Kupisz, Monika, and Jarosław Działek. 2013. "Cultural Heritage in Building and Enhancing Social Capital." *Journal of Cultural Heritage Management and Sustainable Development* 3 (1): 35–54.

National Board of Antiquities [NBA]. 2012a. Lappeenranta Syvä Valkjärvi. *Tangible Heritage Register, National Board of Antiquities, Finland*. Accessed 1 April 2014. http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/mjreki/read/asp/r_kohde_det1.aspx?KOHDE_ID=1000019318.

National Board of Antiquities [NBA]. 2012b. Kurikka Kusikivi. *Tangible Heritage Register, National Board of Antiquities, Finland*. Accessed 1 April 2013. http://kulttuuriymparisto.nba.fi/netsovellus/rekisteriportaali/mjreki/read/asp/r_kohde_det1.aspx?KOHDE_ID=1000020540.

Neis, Pascal, and Alexander Zipf. 2012. "Analyzing the Contributor Activity of a Volunteered Geographic Information Project — The Case of OpenStreetMap." *ISPRS International Journal of Geo-Information* 1 (2): 146–165.

Nieminen, Jukka. 2015. *Vaiettu muinaisuus*. Helsinki: Salakirjat.

Noordegraaf, Julia, Angela Bartholomew, and Alexandra Eveleigh. 2014. Modeling Crowdsourcing for Cultural Heritage. *MW2014: Museums and the Web 2014*. Accessed 30 March 2015. http://mw2014.museumsandtheweb.com/paper/modeling-crowdsourcingfor-cultural-heritage/.

Olsson, Krister. 2010. "Cultural Heritage as a Resource in Place Marketing." In *Integrating Aims – Built Heritage in Social and Economic Development. School of Science and Technology, Centre for Urban and Regional Studies Publications B 98*, edited by Mikko Mälkki and Kaisa Schmidt-Thomé, 251–268. Espoo: Aalto University.

Pánek, Jiří. 2011. "Participatory and Public Participation GIS: A Phenomenon of Neocartography with a High Potential in Developing Countries? In *The Scale of Globalization. Think Globally, Act Locally, Change Individually in the 21st Century*, edited by Přemysl Mácha, and Tomáš Drobík, 235–243. Ostrava: University of Ostrava.

Peterson, Elizabeth. 2013. "Llywelyn's Last Battle? A Real-life Story of the Consequences of the Wikipedia System." In *Ex Philologia Lux. Essays in Honour of Leena Kahlas-Tarkka. Memoirs de la Société Néophilologique de Helsinki* XC, edited by Jukka Tyrkkö, Olga Timofeeva and Maria Salenius, 357–384. Helsinki: Société Néophilologique.

Purser, Margaret. 2012. "Emptying the Magician's Hat: Participatory GIS-Based Research in Fiji." In *The Oxford Handbook of Public Archaeology*, edited by Robin Skeates, Carol McDavid, and John Carman. Oxford: Oxford University Press.

Raddick, M. Jordan, Georgia Bracey, Pamela L. Gay, Chris J. Lintott, Phil, Kevin, Alexander S. Szalay, and Jan Vandenberg. 2010. "Galaxy Zoo: Exploring the Motivations of Citizen Science Volunteers." *Astronomy Education Review* 9 (1). Accessed 24 December 2014.

Randall, Patrick. 2015. "Purposeful Gaming: Work as Play." *Ariadne* (74). Accessed 6 December 2014. http://www.ariadne.ac.uk/issue74/randall.

Reunanen, Esa. 2015. *Uutismedia verkossa 2015. Reuters Institute Digital News Report – Suomen maaraportti. 16.6.2015.* COMET. Tampere Research Centre for Journalism, Media and Communication. Accessed 16 October 2015. http://vkl.fi/files/3147/DNR2015-Suomi-finalb.pdf.

Ridge, Mia. ed. 2014. *Crowdsourcing Our Cultural Heritage*. Farnham/Burlington: Ashgate.

Ruohonen, Juha. 2005. "Saariin ja metsiin haudatut. Historiallisen ajan hautapaikkoja Kangasniemellä." In *Mustaa valkoisella. Ystäväkirja arkeologian lehtori Kristiina Korkeakoski-Väisäselle*, edited by Visa Immonen and Miikka Haimila, 256–269. Vantaa: Turun yliopisto.

Saikkonen, Sampsa, and Paula Häkämies 2014. "Country Report." In *Mapping Digital Media: Finland. A Report by the Open Society Foundations*, edited by Marius Dragomir and Mark Thompson. London: Open Society Media Program. https://www.opensocietyfoundations.org/sites/default/files/mapping-digital-media-finland-20140214.pdf.

Schreibman, Susan, Ray Siemens, and John Unsworth. 2016. *A New Companion to Digital Humanities*. Chichester: Wiley-Blackwell.

Schmidt, Benjamin M. 2012. "Words Alone: Dismantling Topic Models in the Humanities." *Journal of Digital Humanities* 2 (1). https://protect-us.mimecast.com/s/X8vJBRuNOGYYSO?domain=journalofdigitalhumanities.org.

Seitsonen, Oula, and Vesa-Pekka Herva. 2011. "Forgotten in the Wilderness: WWII PoW Camps in Finnish Lapland." In *Archaeologies of Internment*, edited by Adrian Myers and Gabriel Moshenska, 171–190. New York: Springer.

Seitsonen, Oula, and Vesa-Pekka Herva. 2016. ""War Junk" and Cultural Heritage: Viewpoints on the Second World War German Material Culture in Finnish Lapland." In *Proceedings of the 45th Annual Chacmool Conference: War and Peace – Conflict and Resolution in Archaeology*. Alberta: University of Calgary, in press.

Seitsonen, Oula, and Maija Holappa. 2011. "Dokumentointi ruumishautakaivauksilla: Esimerkki Lappeenrannan Huhtiniemestä." In *Arkeologisten hautakaivausten tutkimusmenetelmät. Museoviraston rakennushistorian osaston raportteja* 22, edited by Kati Salo and Marianna Niukkanen, 36–46. Helsinki: Museovirasto.

Seitsonen, Oula, and Kunnas, Liisa. 2009. Archaeological Reconnaissance of a Finnish Civil War Battlefield. *Journal of Conflict Archaeology* 5 (1): 57–80.

Smith, Laurajane. 2006. *Uses of Heritage*. New York: Routledge.

Taavitsainen, Jussi-Pekka. 2012. "Terrorin arkeologiaa." *Hiiskuttua* 2 (2012): 1–8.

Taivainen, Jouni. 2013. "Muinaismuistolain suojelema tai ei – Metsien kulttuuriperintö on moninaista ja arvokasta." In *Arkeologipäivät 2012. Suomen muinaismuistolaki 50 vuotta: vetreä keski-ikäinen vai raihnainen vanhus & Arkeopeda - opetusta, opastusta, oppimista*, edited by Johanna Enqvist, Juha Ruohonen, and Mervi Suhonen, 26–28. Helsinki: Suomen arkeologinen seura.

Tikka, Marko. 2009. "Punainen ja valkoinen terrori." In *Sisällissodan pikkujättiläinen*, edited by Pertti Haapala and Tuomas Hoppu, 226–245. Helsinki: WSOY.

Thomas, Suzie. 2015. "Collaborate, Condemn, or Ignore? Responding to Non-Archaeological Approaches to Archaeological Heritage." *European Journal of Archaeology* 18 (2): 312–335.

Thomas, Suzie, Oula Seitsonen, and Vesa-Pekka Herva. 2016. "Examining the Impact of the Demand for Nazi military Memorabilia on the Material Remains of World War II in Northern Finland." *Journal of Field Archaeology* 41 (3): 331–343.

TNS Gallup. 2015. *TNS. Suomen web-sivustojen viikkoluvut*. http://tnsmetrix.tns-gallup.fi/public/.

Tuominen, Marja Johanna. 2015. Lapin ajanlasku. Menneisyys, tulevaisuus ja jälleenrakennus historian reunalla. In *Rauhaton rauha. Suomalaiset ja sodan päättyminen 1944–1950*, edited by Ville Kivimäki and Kirsi-Maria Hytönen, 39–70. Tampere: Vastapaino.

Vihavainen, Timo. 2013. *Ryssäviha. Venäjän-pelon historia*. Helsinki: Minerva.

Välimäki, Suvi. 2011. "Social Networks for Volunteered Geographic Information – A Case Study of OpenStreetMap." MA thesis, University of Helsinki.

von Ahn, Luis, and Laura Dabbish. 2008. "Designing Games with a Purpose." *Communications of the ACM* 51 (8): 57–67.

Waterton, Emma, and Steve Watson. 2015. "The Ontological Politics of Heritage; or How Research Can Spoil a Good Story." In *The Palgrave Handbook of Contemporary Heritage Research*, edited by Emma Waterton and Steve Watson, 21–36. Basingstoke/New York: Palgrave Macmillan.

Westerlund, Lars. 2008. *Saksan vankileirit Suomessa ja raja-alueilla 1941–1944*. Helsinki: Tammi.

Wilson, Joseph A. P. 2012. "The Cave Who Never Was: Outsider Archaeology and Failed Collaboration in the USA." *Public Archaeology* 11 (2): 73–95.

Yleisradio [YLE]. 2014a. Merkitse kartalle – missä Suomen sodat näkyvät? *YLE*, July 31. Accessed 31 July 2014. http://yle.fi/uutiset/merkitse_kartalle__missa_suomen_sodat_nakyvat/7380825.

Yleisradio [YLE]. 2014b. Kiitos, että kirjoititte historiaa kanssamme. *YLE*, October 5. Accessed 5 October 2014. http://yle.fi/uutiset/kiitos_etta_kirjoititte_historiaa_kanssamme/7407755.

Yleisradio [YLE]. 2014c. Suomen täydeltä sotahistoriaa. *YLE*, October 5. Accessed 5 October 2014. http://yle.fi/uutiset/kuusi_tarinaa_suomen_sodista__yleiso_kirjoitti_sotahistoriaa/7502292.

Zarndt, Frederick. 2012. "Putting the World's Cultural Heritage Online with Crowdsourcing." IFLA 2012 Pre-Conference Presentation Materials, Mikkeli, Finland. Accessed 16 October 2014. http://www.ifla.org/files/assets/newspapers/Mikkeli/zarndt_frederick.pdf.