



A Sacred Tree in the Boreal forest: A Narrative About a Sámi Shaman, her Tree, and the Forest Landscape

Ingela Bergman¹ · Lars Östlund²

Accepted: 24 September 2022
© The Author(s) 2022

Abstract

Since the early nineteenth century, forest landscapes and socio-economic contexts have significantly changed in northernmost Sweden. These processes include agrarian colonisation, the Christianisation of the indigenous Sámi people, and the transfer of land tenure. We aim to analyse how Sámi religious practice manifested itself in a time of dramatic social transition in northern Sweden by focussing on the life and religious practice of a Sámi woman known as the shaman *Guoksik-gummo*, 'the Lady of the Siberian Jay.' We analyse a range of historical records and one specific sacred tree related to her to understand this period better and illuminate the changes in land-use religious practice and landscape transformation between the early nineteenth century and the early twenty-first century. We conclude that better documentation, more vital protection by law of Sámi cultural traces in northern landscapes, and better consultation with Sámi are needed in the future.

Keywords Sámi shaman · Sacred tree · Forest history · Landscape archaeology · Sápmi · Northern sweden

Introduction

Since the early nineteenth century, forest landscapes, land tenure systems, and socio-economic contexts have significantly changed in northernmost Sweden. Before that time, the designated areas referred to as the Sámi taxation 'lands' (Sw. *lappskatteländ*), controlled by Sámi communities and used by individuals or extended families, were the norm for land tenure in Swedish Sápmi (cf. Holmbäck, 1922; Korpikajko-Labba, 1994). While the Sámi taxation lands were registered and used by the Swedish authorities for tax purposes, these land divisions were likely to go further back in time based on internal processes among Sámi families.

These unlogged and old-growth forests were used by Sámi for many purposes but in a sustainable way. Hence, the natural disturbance was predominant (Östlund et al., 1997; Rautio et al., 2016). Each tract of taxation land included various resources, such as reindeer pasture, fish, small game, wild plants, firewood, etc., that were used annually. Sharp

seasonal variations implied well-developed and flexible land-use strategies to cope with varying climatic and environmental conditions. The working and religious years were functionally related, representing, in fact, two sides of the same reality. The indigenous Sámi religion embraced an animistic conception of the world. Landscapes were laden with religious meaning, and accordingly, the ritual agenda and religious practice manifested in numerous sacred places and sacrificial sites (cf. Manker, 1957; Bäckman, 1975; Rydving & Kristoffersson, 1993; Mebius, 2003).

Landscape features or objects, such as mountains, lakes, rapids, or specific trees, could have religious significance and be the objects of veneration and sacrifice. In addition, sacrificial altars were raised near settlement sites, along migration routes, in connection with specific enterprises or critical situations. Historical records inform about several ritual practices in connection to trees, particularly pine trees (Bergman et al., 2008). Sacrificial gestures could include placing food or other gifts among the branches, hammering iron objects into the trees, and marking trees by blazing (Bergman et al., 2008). Blazes, i.e., removal of the outer bark on a tree and exposing the wood, were very common among the Sámi and had multiple purposes, such as marking trails, borders, and hunting paths. In a religious context, trees were blazed, and specific patterns were cut into the blaze (Bergman et al., 2008; Östlund et al., 2002).

✉ Lars Östlund
Lars.Ostlund@slu.se

¹ INSARC, The Silver Museum, 938 31 Arjeplog, Sweden

² Department of Forest Ecology and Management, Swedish University of Agricultural Sciences, 901 83 Umeå, Sweden

It was not until the eighteenth and nineteenth centuries that agrarian settlements were established in the interior on a large scale (Bylund, 1956; Hultblad, 1968; Brännlund, 2015: 10–16). Sámi, in possession of taxation lands, faced competition from coastal farmers moving in and claiming rights to fishing waters and pastures. The Arjeplog area was among the last to be settled by immigrating farmers (Bylund, 1956). During the nineteenth century, the number of agrarian settlements increased, and conflicts between the Sámi and the settlers amplified. However, long before this settler colonisation the ambition of the Church to Christianise the Sámi of Norway, Sweden, and Finland, challenged the Sámi way of life. From the seventeenth century onwards, the Church intensified its efforts, often acting with increasing physical force. Sacrificial sites were plundered and destroyed, shaman drums were confiscated, and practitioners of the indigenous religion were brought to court and punished. The Arjeplog area was a notable arena of harsh religious encounters, and the Sámi offered strong resistance (Rydving, 1995). As a warning to the Sámi community, Lars Nilsson was executed in 1696 for having used the drum (Granqvist, 1998; Rydving, 1995). Nevertheless, religious change was a long and drawn-out process. Although Christianity did become commonly accepted in time, aspects of the indigenous religion remained in practice well into the nineteenth century.

We analyse how Sámi religious practice manifested itself in a time of dramatic social transition in northern Sweden by focussing on the life and religious practice of the Sámi woman Inga Enarsdotter, known as the shaman *Guoksik-gummo*, 'the Lady of the Siberian Jay.' The specific questions we want to answer are:

- 1) What was Inga Enarsdotter's life story, and what was the socio-cultural context in which she lived?
- 2) What was her *modus operandi* in practising the indigenous Sámi religion, and how can we interpret a sacred tree attributed to her?
- 3) What is the present legacy of Sámi cultural and religious practices in northern forest landscapes?
- 4) How can we develop functional conservation strategies to protect northern Sweden's ancient Sámi cultural landscape?

Materials and Methods

We base this study on three different research methods to understand the complex relationship between a Sámi woman, her landscape, and historical narratives reaching into the present time. First, we analyse relevant written historical records to decipher and build the basic life history of Inga Enarsdotter. Second, we conduct semi-structured interviews with elderly Sámi reindeer herders

knowledgeable about today's traditions concerning Inga Enarsdotter and the historical context of these traditions. Third, we use dendrochronological methods to analyse the *Guoksik-gummo* tree, a Scots pine (*Pinus sylvestris* L.) attributed to Inga Enarsdotter (Fornsök, 1996: 9375).

The essential biography of Inga Enarsdotter is built on several written sources, such as birth, baptismal, wedding, and death records covering the years 1719–1790, 1861, 1865, and 1867–1889; Communion registers dating to 1774–1803 and 1804–1825; and clerical surveys (Sw. *husförhörslängder*) from the years 1772–1826, 1855–1864, 1865–1881 and 1882–1891. The historical records we used also include censuses (Sw. *mantalslängder*) from the period 1642–1820 and court protocols from regular sessions at the Arjeplog district court during the years 1820–1824 and 1840–1844 (including additional protocols from the period 1841–1866 and 1889–1896 as well as protocols from extraordinary sessions during the period 1829–1865). These are original records held at the Swedish National Archive (*Riksarkivet*) and digitally available on the Archive's website. Each archival source is referred to by an abbreviation, referenced under Unpublished sources (Fig. 1).

Ethnological accounts from the first half of the twentieth century provide posthumous but still valuable information about Enarsdotter's imprint as a reindeer herder and her religious practice (Kolmodin, 1914, Ruong 1943–44, 1945; Manker, 1957, 1968). In addition, we interviewed two elderly reindeer herders from the Maskaur reindeer herding community of Arjeplog, Norrbotten. The interviews were semi-structured and open-ended. Our purpose was to understand how the tradition of Inga Enarsdotter has been maintained within the Sámi community during the last 150 years. The starting point for these interviews was the first contact from Leif Lundberg and Lennart Jonsson, who wanted to share this information with us. Before the interviews, a template with questions was prepared to provide an outline. The questions were broad and open-ended to allow the informants to speak freely. The template was consistently followed throughout each interview, but minor deviations were accepted if they were still relevant to the aim of our research (Ryen, 2004). Following ethnological accounts and interviews, we conducted archaeological surveys of settlements, fishing sites, and corrals attributed to *Guoksik-gummo* to collect additional information about her life and subsistence activities. The archaeological documentation is kept in the Silvermuseet archives.

We conducted a thorough analysis of the *Guoksik-gummo* sacrificial tree that is located within the Maskaur Sámi village community area. Several cores were sampled from the tree's trunk and blazes on the tree. All core samples were analysed using dendrochronological methods. They were

mounted and sanded following standard procedure (Baudet et al., 2020) and examined before being measured to observe irregularities such as growth release or missing rings. Core samples were scanned, and tree rings were measured to the nearest 0.01 mm using CooRecorder and CDendro software and statistics (version 9.3.1, Cybis Elektronik & Data AB, Sweden). The measured tree rings were subsequently compared to a local master chronology for Tjieggelvas NR (Gunnarson et al., 2012) and a regional master chronology for northernmost Sweden (Grudd et al., 2002). Both master chronologies cover a period that spans more than the last 500 years.

Results

Early Life of Inga Enarsdotter

Inga Enarsdotter was born on 12 October 1782. She was a daughter of Enar Amundsen and Karin Mårtensdotter (RA C:6), who descended from the Semisjaur mountain Sámi community of Arjeplog (RA M:1). Inga's family had their main settlement site by the upper part of the River Laisälven. In addition to Inga, her parents, and sister, the household also included her widowed grandmother and an aunt (RA C:4; RA C:1).¹ At the age of 14, Inga was admitted to the school for Sámi children in Arjeplog (RA C:7). She left school three years later, in 1799. Neither of her parents had attended school, nor had her sister, who was two years older. The medium age of first-year pupils was 16. Generally, school-days comprised two years; thus, Inga stood out as younger than most first-year pupils. Furthermore, she attended school a year longer than was commonly the case. A note in the school register states that her extended stay was caused by a lengthy period of illness (Johansson & Flodin, 1989).

Having left school, Inga moved to Norway to work as a maid in the household of the priest of the Gildeskål parish. Over the following few years, she served in two more households before returning to Arjeplog (RA D:3). In 1813, at the age of 31 and still unmarried, Inga gave birth to a daughter, Brita Stina (RA C:5); Brita died at less than two months old. Inga then married Anders Persson Nyman in 1815 and gave birth to another daughter, Margareth Cathrin, in 1816 (RA C:5). By then, Inga had moved to join her husband and his parents in the Måsskávrrie area in Arjeplog, where they owned an area of Sámi taxation land. She was 33 when she started a new life with her husband, who was nine years her junior. According to official documents, Inga, her husband, and her daughter made up a household

with her parents-in-law and a widower (RA C:5), supporting themselves by reindeer herding, hunting, and fishing. The switch from mountain reindeer herding to forest herding implied adjusting to new physical environments and herding practices.

Inga's mother tongue was Sámi, but as she attended school, her language skills would have included both spoken and written Swedish. According to the parish surveys (Sw. *husförhörslängder*), she could read and write on a basic level, and her understanding of the Christian faith was deemed satisfactory. Inga was baptised according to Christian practice and partook in Communion regularly. However, a comment in one of the parish surveys on her manners deviates from the otherwise positive impression. She earned this negative remark for being quarrelsome (RA C:5). No other household member was described in this way.

A Woman Defending her Rights

A court protocol from 1821 mentioned a conflict between Inga, her husband, and their neighbouring settlers over fishing rights in common waters (RA D:1). Inga, representing her husband, claimed that the settlers had started fishing too early and on their own, in contravention of previous agreements. This conflict may have been the reason behind the remark about her being quarrelsome. In the early 1840s, Inga turned up again in a court protocol (RA D:2). As before, she represented her husband as the legal owner of their taxation land. The case she brought to court this time concerned the rights of abode (Sw. *åborätt*) to their taxation land, Ráhkåivvie. Inga and her husband were in conflict with a settler who, they claimed, through tricks and betrayal, had acquired the rights to settle and use the forest and fishing resources on their land. The court did not rule in their favour. Three years later, in 1846, Inga was arrested and sued for allegedly having set fire to ten hay-drying racks that belonged to the settler at Ráhkåjvvie (RA D:4). The settler claimed that he and his wife had seen Inga running between the drying racks with a torch in her hand. Inga firmly denied the accusations, saying that she was staying at a *goahte* (a Sámi hut) far away from the drying racks at the time of the alleged crime. She also pointed out to the court that she and the plaintiff were on bad terms. The two men who arrested Inga were called witnesses, and they told the court that she had asked them if they had seen her setting fire to the racks. All of the court members were men, and among the seven lay assessors, only one member may have been Sámi; otherwise, they were Swedish settlers, as were the witnesses and the plaintiff.

Nevertheless, the judgment was in Inga's favour as there were no eyewitnesses other than the plaintiff. Inga was set free. In his certificate to the court, the priest described her as being honest, having a weak and lean physical constitution,

¹ Abbreviations for historical records and the corresponding records can be found under unpublished sources in References.

but with an expression displaying her lively, hot and irritable temper (RA D:4).

In 1851, at nearly 70, Inga became a widow. Her daughter Margareth Cathrin had married three years earlier and moved away, and thus Inga was left alone. According to the estate register, her husband did not leave much behind: except for clothes and three axes, he left only two female reindeer and a calf. However, Inga may have had her reindeer, equipment, and buildings. The fishing gear included a seine and several fishing nets, which shows that fishing was essential to her subsistence (RA D:4). In her later days, Inga invited two reindeer herders from the neighbouring Mausjaur village community to take over her taxation land and, in return, take care of her for the rest of her life (Ruong, 1945; RA C:2). However, this arrangement does not seem to have turned out well, and in the parish survey of 1860 Inga is referred to as being a Sámi pauper (Sw. lappfattighjon) (SCB:1). On the other hand, the settler whom she accused of having acquired the rights of abode through deception, lived well at Ráhkájvvie and prospered (RA D:5). Inga died in 1866 (RA C:3). She was found dead in the forest. According to the local tradition, she was on her way to Stockholm to meet with the Swedish king and tell him about the injustices she had suffered (Ruong, 1945).

The Guoksik-gummo Tree

Inga Enarsdotter moved with her reindeer on a seasonal basis between different settlement sites within an area centred around her base camp by the lake named Måsskávrrie. According to different and independent sources, a pine tree situated by lake Luvliebe Vuojjure, about 30 km south-east from her base camp, is attributed to her status as *Guoksik-gummo* (oral information Leif Lundberg, Anne-Maj Wallström) (Fig. 2). In addition, many informants refer to the tree as a known sacrificial tree, although not attributing it to *Guoksik-gummo* or any other person. Thus, the status of this particular tree has been conveyed over generations. Our interviews with the Sámi reindeer herders revealed that they had learnt the story about the tree from older people in the local Sámi community. They knew about *Guoksik-gummo* and her use of the tree, and they also knew about her conflicts with the colonising farmers in the area. Furthermore, they indicated that knowledge about the tree was kept within the local community and not spread in the broader context. The tree and its connection with Inga Enarsdotter (*Guoksik-gummo*) was also mentioned very briefly in an archaeological survey in 1969 (SA N:1), and the site was noted again in 1971 (RAÄ:1); however, in neither case was any thorough documentation provided.

The tree itself has particular features. Over the 300-year course of its life, it grew into a rather conspicuous shape because it grew in open conditions for a long time and was

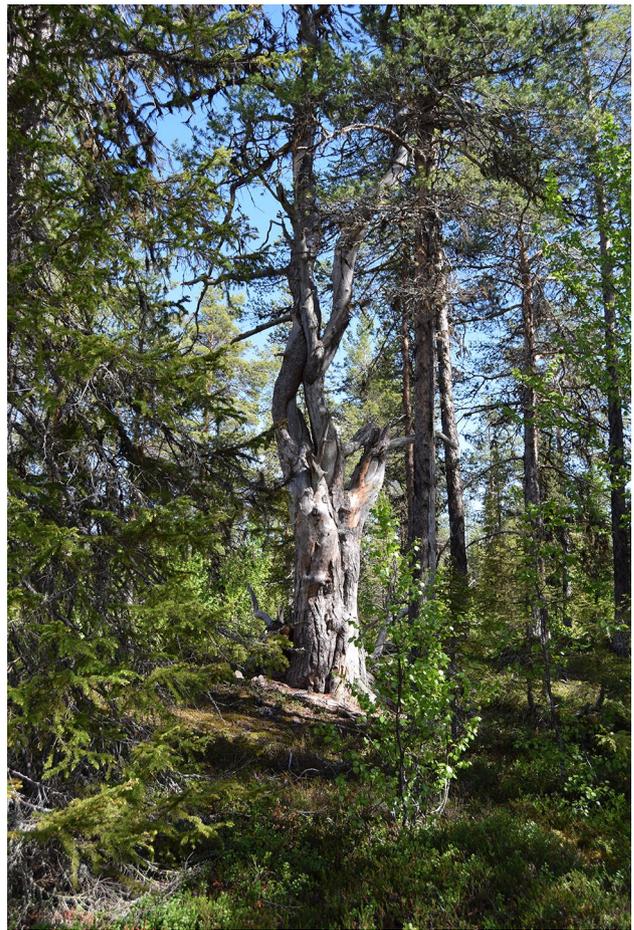


Fig. 2 The Guoksik-gummo tree

thus clearly dominant, standing out in the forest during its 200 years as a mature tree (Fig. 2). However, the essential feature is the direct affiliation to *Guoksik-gummo*. The many blazes and the stone put into the fork of the two main stems strengthened its significance as a sacrificial tree (Figs. 3–4).

Today, the tree is a lone old pine located on a small hill next to an area of wetlands and a lake. The surrounding forest is managed young and has been thinned multiple times during the last 50 years; the only older tree remaining is the *Guoksik-gummo* tree (Fig. 2). The tree died in 1978, and while standing, some large branches fell; most of the outer bark has now fallen off. The dendrochronological analysis showed that the tree was approximately 320–370 years old when it died in 1978; the exact age cannot be determined due to widespread stem rot throughout the trunk.

The diameter of the tree is 0.85 m at 1.3 m above ground. It has multiple stems above two metres high, indicating that it started growing in relatively open conditions and thus has had a peculiar form, different from other Scots pines, throughout its life history. The analysed tree rings show that the tree was clearly in a senescent state when it died.



Fig. 3 Blazes on the main stem of the tree (left picture), large blaze on a branch 2.5m above the ground (lower right picture) and detail of that blaze with clear knife-mark on the upper part (upper right picture)

One of the most conspicuous features of the tree is that it has been blazed multiple times (Fig. 3). Seven open-face scars have been cut into the trunk and on the major branches of the tree. Many are markedly encroached, indicating they were made long ago; three scars have clear tool marks. Several attempts to date the scars have been made, but only one of these was successful. The wood inside most of the scars is severely decayed, and although it was impossible to extract tree rings that could be dated precisely, we suggest that most were made in the early- to the mid-nineteenth century. The only successful dating was the uppermost scar on one of the large branches, dated to 1834 (Fig. 3c). This particular scar also had a clear knife mark on the uppermost section.

What clearly shows that the tree has been used as a sacrificial tree is that inside the tree – and at two metres above the ground – a large (ca. 25–30 cm in diameter) stone has been placed (Fig. 4). The stone has a flat upper surface providing a space for placing objects. At the time, the stone was most likely placed in a fork of the multiple stems providing a platform in the middle of the tree. Since that time, it has been wholly encroached and can now only be detected through a very narrow window in the trunk.

About two metres north of the tree, there is a down-log from another large Scots pine tree. This tree died around 1950 and fell sometime afterwards. It also has specific markings and features which connect it to the Guoksik-gummo tree: it has four blazes on the stem. One stone has been inserted into a branch attached to the stem (Fig. 4c). While the blazes are still visible, this secondary tree is severely decayed, and no dendrochronological analyses were made.



Fig. 4 Opening at the center of the tree (right picture), round granite stone (ca 25–30 cm in diameter) inside the tree (lower left picture) and inserted stone in into a branch on the tree adjacent to the Guoksik-gummo tree (upper left picture)

The Lady of the Siberian Jay

From an internal Sámi perspective, Inga Enarsdotter was known as *Guoksik-gummo*; this translates as "the Lady of the Siberian Jay," and this is the name that has been carried over generations in the local Sámi community. The Siberian Jay (*Perisoreus infaustus*) is a very characteristic bird of the northern taiga (Ulfstrand, 2003). It thrives in old-growth coniferous forests and stays put over the winter in the north rather than migrate to warmer climes (Blomgren, 1964; Lindgren, 1975). Families of Siberian Jay, including some young offspring, assert territories of between 50–150 hectares which they protect aggressively against other individuals of the same species (Griessner & Ekman, 2005). They also show nepotistic behaviour, and promote one – or at most two – of their older offspring in their territories (Griessner & Ekman, 2005). The Siberian Jay also has a very peculiar attitude towards humans since it, often in pairs, seeks out people in the forest and approaches them on silent wings. Unlike almost all other northern forest birds, it thus comes physically close to people and can be offered food from the hand (Blomgren, 1964). The combination of these behavioural traits also means that it would have been the same family of birds that interacted with Inga Enarsdotter at her sacrificial tree. We do not know why Inga Enarsdotter had the shaman name of *Guoksik-gummo*. Did she choose the name herself and thus choose the Siberian Jay to be her animal follower, or did the bird choose her, or was this name given to her by others within the Sámi community?

Discussion

Guoksik-Gummo: A Sámi Shaman in a Transitional Time

Throughout her life, Inga Enarsdotter – *Guoksik-gummo* – was active within a geographical and social sphere that was familiar to her. Her forest landscapes were the traditional Sámi taxation lands (cf. Norstedt, 2018), within which different resources were used annually or semi-annually. She, therefore, carried with her the Sámi way of landscape affiliation and understanding, internalised since childhood. In a time of increasing state control and formal settlement by farmers, she stepped forward as a strong and fearless defender of her family's rights to land and waters. In local Sámi folklore, *Guoksik-gummo* stands out in her very own capacity as a reindeer herder and a fisher. According to local tradition, her reindeer were very tame, and thus there was no need for fences around her milking corrals. The exact locations of some of her settlement sites and milking corrals were pointed out to Professor Israel Ruong in connection with his documentation of the forest Sámi of Arjeplog/Árjeplovve (Ruong, 1945), and indeed some of these sites are still known among those living in the area today. *Guoksik-gummo* also kept many goats along with the reindeer, grew potatoes at the summer sites, and was engaged in fishing. She was very particular about adequately caring for the fish populations to prevent over-exploitation. When fishing for Perch, for example, she would use nets with a wide mesh to catch only mature fish. In fact, there was a conflict between her and two brothers who fished for Perch using nets with too small mesh. The many local recollections of her activities make her still present in the landscape, maintaining a Sámi narrative about the close relationship between humans and the natural environment.

It is striking that there is no mention of *Guoksik-gummo's* husband in the historical records. Furthermore, he is as invisible in the local folklore as in the written records. As well as apparently possessing a more assertive personality, Inga was probably more skilled in reading, writing – and arguing – in Swedish than her husband, which may explain this absence. Through her work as a maid, she would have been well acquainted with the modes and manners of officialdom, knowing how to proceed in judicial matters. Inga Enarsdotter was well informed about Christian beliefs, customs, and practices and acted accordingly. She was a Christian, at least by her appearance, but in reality, several meaningful aspects of her religious life were rooted in the indigenous spiritual landscape. Her shaman name and her religious practice, well known within the local Sámi community and taking place in the open, shows that she was a female shaman, a *guaps*. As *Guoksik-gummo*, she acted

beyond the radar of the Church and the Swedish authorities. Although not explicitly taking the role as an advocate for Sámi rights, her everyday subsistence and her religious practice was, in effect, an action in defense of Sámi lifeways. Interestingly, among settler descendants, Inga Enarsdotter is known only by her nickname, *Guoksik-gummo* – there is no mention of her religious activities. In a settler context, her reputation relates entirely to her conflicts with neighbouring farmers.

Guoksik-gummo and the Church represented different – and in large parts geographically separate – spheres of influence. Hers was the local Sámi community and the indigenous spiritual landscape, while the Church manifested its authority through space dominance (church buildings), the law, and bureaucratic administration. The long-running tension between the spheres slowly shifted during the nineteenth century to the Church's and the authorities' advantage. *Guoksik-gummo* personified the liminal zone between spheres – and managed to balance the two. However, she shared this situation with many others. For example, the strikingly factual judgment, lacking diminishing undertones, may be explained by the local priest being Sámi himself (Nordberg, 1973), unbiased in his cultural understanding and without diminishing pre-conceptions. In this context of duality, the *Guoksik-gummo* tree makes its mark as a narrative of Sámi history. Essentially, it signifies cultural resilience during a time of significant societal change.

The Guoksik-Gummo Tree in the Forest Landscape: Past and Present

Marked seasonal changes in the region have promoted logistically well-organised subsistence strategies among the Sámi and other indigenous peoples in Arctic and sub-Arctic areas, directly impacting land-use strategies and the ritual agenda. Working, social and religious spaces were interrelated; thus, the landscapes where Sámi people had tenure and lived were heavily laden with religious significance. Distinctive elements in the natural environment – such as forests, lakes, mountains, islets, and rapids in streams – were part of the subsistence strategy but could also be the objects of offerings and other ritual practices within the framework of indigenous religious beliefs (Manker, 1957). Living trees, particularly trees with unique characteristics (old age, distinctive appearance, etc.), could be either the objects of sacrificial practices or the media through which offerings were conducted (cf. Mebius, 1968). Some annual rituals were conducted in connection with specific trees, and they were incredibly intense in midwinter (Rheen, 1983 [1671]; Graan 1983 [1672]).

The religious imprint on the cultural landscape in which *Guoksik-gummo* was active comes forth in place names and oral traditions related to sacrificial sites. Within a radius of c. 30 km from lake Måsskávrrie, several place names refer to sacred sites, underlining the landscape significance of religious practices in olden times: for example, Bassegielas ('the holy heath'), Sájvatj ('the lake with holy fish'), Siejdi-enjuönie ('the promontory with a *siejdde* [a sacred object]') and Siejdiejávrieh ('the lakes with *siejde*'). Two place names with religious connotations stand out: first, Áhkalis, referring to the female goddesses, the *áhka*; and second, Guobasvárre ('the mountain of the female shaman'). It is only rarely that female shamans, *guobas*, are mentioned in written sources. Thus, naming a mountain after a *guobas* is all the more conspicuous, pointing to female shamans having had a strong position in the Arjeplog area.

Among the local population in the Måsskávrrie area, knowledge of many sacrificial sites remained current into the mid-twentieth century (Kolmodin, 1914; Manker, 1957). Older people could tell in some detail about the offerings: castrated male reindeer, preferably white, were brought to a small islet situated in the northern lake Siejdiejávrieh. The reindeer were tied to a large pine tree and then left to die as an offering to ensure good luck with the reindeer herding. Offerings were made to stone *siejde* placed by the shore to ensure good fishing luck (Kolmodin, 1914; Manker, 1957). The lakes had a reputation for their large and fat whitefish, weighing up to four kg (Johansson, 1989). In addition, several trees with carved human-like faces were recognised as *siejde* (SaP, plural form), to which offerings were made for fishing luck. Due to extensive logging over the past 150 years, not one of these trees has survived.

In our research, based on an interdisciplinary mix of methods and materials from ecology, archaeology, and history, we have shown the clear connection between *Guoksik-gummo* and a specific sacred tree. We do not know how exactly she used this sacred pine tree and can only make some carefully qualified assumptions based on other sources about religious practice and the tree itself. We know from many different historical records that Sámi shamans made offerings – often food – and put these next to a *siejde*, on a built wooden platform, or in birch-bark containers hanging on a tree (Bergman et al., 2008; Mebius, 1968). Oral traditions about the religious practice of *Guoksik-gummo* are also particular about her worshipping trees with anthropomorphic features (Manker, 1957). She also kept two *siejde* of stone with human-like faces in a storage hut, and in connection with offerings, she placed them out in the sun and smeared them with fat (Kolmodin, 1914). We, therefore, assume that Inga Enarsdotter put offerings on the stone altar in the tree or on the large branches with blazes. This conclusion is reinforced by her shaman name, *Guoksik-gummo*, which indicates that she had a special relationship with the *Guoksik*

(Sámi) or Siberian Jay. If food offerings were put in her tree, a family of Siberian Jays living in this territory would almost certainly be present recurrently, arriving on silent wings and forming a solid bond with her. It can easily be depicted how Inga regularly fed Siberian Jays at her tree and thus had a strong relationship with these charismatic birds. A family of Siberian Jays would also, and unlike any other bird species in the north, be almost tame and 'talk' in their distinctive way – "*the notorious chatterbox*" (Lindgren, 1975). The old tree itself, with its many branches and the offering stone in the middle, would be an attractive space for the interaction between *Guoksik-gummo* and the Siberian Jay.

Three hundred fifty years ago, when the *Guoksik-gummo* tree started growing, the whole region was divided into Sámi taxation lands, each belonging to one Sámi family, paying tax to the Swedish government for the right to use the land (Norstedt 2018). In the Sámi cultural landscape of that time, every part had a specific use and a name. The beginning of the 1800s – when the *Guoksik-gummo* tree was already large and mature and used as a sacred place by Inga Enarsdotter – marked the start of agrarian colonisation. During this historical phase, the forests and other resources were used more intensively, and Sámi land tenure started to disintegrate due to actions taken by the Swedish government (Hultblad, 1968; Rautio et al., 2016). In the latter part of the nineteenth century, when Inga died, tree worship had ceased, and a logging frontier had reached the area. Large and old Scots pine trees in all accessible forests were high-graded and floated to sawmills on the coast (Östlund & Norstedt, 2022). Although the *Guoksik-gummo* tree was large and old at the time, its timber quality was very low due to stem rot and the large branches; therefore, it was never cut at this time. Most likely, it was also well known as a sacred tree outside of the Sámi community and therefore spared from cutting for other reasons. Until this time, the forests in the region were still dominated by old trees, many of which had markings of past land use such as trail blazes, bark-peeling scars, or even ritual features (Östlund et al., 1997).

What is more remarkable, from the standpoint of the survival of this particular tree until very recent times, is the fact that it survived the era of modern, highly extractive forestry during the twentieth century. During this period, northern Sweden's logged-over forests were considered degenerated forests of low value by the foresters of state agencies and commercial forest companies (Lundmark, 2020). A campaign was launched to cut old forests and replace them with fast-growing coniferous plantations. New methods and tools were applied, including soil preparation, artificial regeneration, and heavy use of chemicals (Ebeling, 1959; Östlund et al., 2022). Most remnants of old-growth forests with traces of Sámi land use were eradicated after the 1950s. Since then, the *Guoksik-gummo* tree has been a

unique feature in a wholly transformed forest landscape, now consisting of young, even-aged commercial forest.

We suggest the following actions to protect the remaining traces of the Sámi culture in northern Swedish forest landscapes:

- 1) Thorough documentation of all known sites of significance in Sámi history by an integrated approach of interviews with the elderly, analysis of historical records, and reviews of archaeological site information.
- 2) Stronger protection by law and practice of Sámi cultural sites from forestry and other potentially destructive economic activities. This is particularly important since many sites are manifested by ecological features such as trees (live and dead) and patterns in forest structure.
- 3) Outreach and consultation with Sámi during all forestry operations on traditional Sámi lands.

We conclude that while there might not be so many spectacular trees comparable to the *Guoksik-gummo* tree, many sites and forests are richly laden with the history of Sámi land use in the north of Scandinavia. These must be identified and protected while there is still time and the elderly are still alive to recall their importance and history.

Author contributions Ingela Bergman (IB) and Lars Östlund (LÖ) both contributed to the study's conception and design. Material preparation, data collection, and analysis were performed by IB and LÖ jointly. The first draft of the manuscript was written jointly by IB and LÖ. IB focused primarily on the historical records and LÖ primarily on the ecological aspect of the studied tree, the forest landscape, and the connection to the Siberian Jay. Both authors developed and commented on previous versions and read and approved the final manuscript.

Funding Open access funding provided by Swedish University of Agricultural Sciences. This study was funded by a grant (2021–02936) from the Swedish Research Council to the main applicant Ingela Bergman.

Data Availability The datasets, dendrochronological analysis, and transcribed interviews generated during and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethical Approval The authors have no relevant financial or non-financial interests to disclose. All authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

Informed Consent Informed consent was obtained for all respondents, and research was conducted in line with the ethical standards established and approved by the authors' institutions and following usual social sciences approaches.

Conflict of Interest The authors have no competing interests to declare relevant to this article's content.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

Unpublished sources. The archival sources are referred to in the text by the abbreviation listed below in italics after each source, e.g., RAÄ:1... SCB:1. Riksantikvarieämbetet (The Swedish Board of Antiquities – RAÄ)

Fornsök, Raä nr 111:2, L1996:9375, Arjeplog (*RAÄ:1*)

Riksarkivet (Swedish National archive - RA). Domstolsarkiv (Court archives)

Arjeplogs tingslags häradsrätts arkiv, referenskod SE/HLA/1040001, Domböcker vid ordinarie ting 1820-1824 (*RA D:1*)
 Arjeplogs tingslags häradsrätts arkiv, referenskod SE/HLA/1040001, Domböcker vid ordinarie ting 1840-1844 (*RA D:2*)
 Arjeplogs tingslags häradsrätts arkiv, referenskod SE/HLA/1040001, Domböcker och protokoll vid urtima ting 1829-1865 (*RA D:3*)
 Arjeplogs tingslags häradsrätts arkiv, referenskod SE/HLA/1040001, Småprotokoll 1841-1866 (*RA D:4*)
 Arjeplogs tingslags häradsrätts arkiv, referenskod SE/HLA/1040001, Småprotokoll 1889-1896/1949 (*RA D:5*)

Mantalslängder 1642-1820, Västerbottens län. Arjeplogs lappmark

SE/RA/55203/55203. 29/90 (*RA M:1*)

Kyrkoarkiv (Church archives – RA C)

Arjeplogs kyrkoarkiv, SE/HLA/1010006, Husförhörlängder 1772-1826 (*RA C:1*)
 Arjeplogs kyrkoarkiv, SE/HLA/1010006, Husförhörlängder 1855-1864 (*RA C:2*)
 Arjeplogs kyrkoarkiv, SE/HLA/1010006, Husförhörlängder 1865-1881 (*RA C:3*)
 Arjeplogs kyrkoarkiv, SE/HLA/1010006, Kommunionlängder 1774-1803 (*RA C:4*)
 Arjeplogs kyrkoarkiv, SE/HLA/1010006, Kommunionlängder 1804-1825 (*RA C:5*)
 Arjeplogs kyrkoarkiv, SE/HLA/1010006, Födelse- och dopböcker 1719-1790 (*RA C:6*)

Arjeplogs kyrkoarkiv, SE/HLA/1010006, Förteckning över skolpliktiga barn, 1743-1875 (RA C:7)

Statistiska Centralbyrån (Swedish official statistics - SCB)

Primärmaterial, utdrag ur husförhållningarna, 1860. Norrbottens län, Arjeplog (SCB:1)

Silvermuseet, Arjeplog. Silvermuseets arkeologiska arkiv (archive of archaeological documentation)

(Nordärkeologi, rapport: NA 191) (SA N:1)

Oral information. Leif Lundberg (reindeer herder, Maskaure Sámi village, Arjeplog)

Leif Lundberg (reindeer herder Maskaure Sámi village), Lennart Jonsson (retired, Maskaure), Anne-Maj Wallström (retired, Umeå)

Literature

- Bäckman, L. (1975). *Sajva: Föreställningar om hjälp-och skyddsväsen i heliga fjäll, bland Samerna*. Almqvist & Wiksell.
- Baudet, M., Josefsson, T., & Östlund, L. (2020). New insights into estimating the age of old Scots pine from increment cores with stem rot. *Dendrochronologia* 64:125782. <https://doi.org/10.1016/j.dendro.2020.125782>.
- Bergman, I., Östlund, L., Zackrisson, O., & Liedgren, L. (2008). Varro Muorra: The landscape significance of Sámi sacred wooden objects and sacrificial altars. *Ethnohistory*, 55(1), 1–28.
- Blomgren, A. (1964). *Lavskrika*. Albert Bonniers förlag, Stockholm.
- Brännlund, I. (2015). *Histories of reindeer husbandry in Swedish Sápmi 1740–1920* (Doctoral dissertation, Centrum för Sámi forskning, Umeå universitet).
- Bylund, B. E. M. (1956). *Koloniseringen av Pite lappmark tom år 1867. The colonization of Pite lappmark until 1867*. In Swedish with an English summary. Almqvist & Wiksells Boktryck.
- Ebeling, F. (1959). Skogarnas vård i övre Norrland från och med 1930-talet. In Arpi G (ed) *Sveriges skogar under 100 år*. Kungl. Domänstyrelsen, Stockholm.
- Graan, O.S. (1983 [1672]). Relation, eller en fulkomblig beskrifning om lapparnas ursprung. In: *Berättelser om samerna i 1600-talets Sverige*. In Wiklund, K B (ed) Kungl. Skytteanska samfundet, Umeå.
- Granqvist, K. (1998). Thou shalt have no other Gods before me (Exodus 20:3). Witchcraft and Superstition Trials in 17th- and 18th-Century Swedish Lapland, In Anon (ed) conference proceedings: Ecology of spirit : conference : cultural plurality and religious identity in the Barents Region : Umeå University 1996 September 19th-21st.
- Griesser, M., & Ekman, J. (2005). Nepotistic mobbing behaviour in the Siberian jay, *Perisoreus infaustus*. *Animal Behaviour*, 69, 345–352.
- Grudd, H., Briffa, K. R., Karlén, W., Bartholin, T. S., Jones, P. D., & Kromer, B. (2002). A 7400-year tree-ring chronology in northern Swedish Lapland: Natural climatic variability expressed on annual to millennial timescales. *The Holocene*, 12(6), 657–665.
- Gunnarson, B. E., Josefsson, T., Linderholm, H. W., & Östlund, L. (2012). Legacies of pre-industrial land use can bias modern tree-ring climate calibrations. *Climate Research*, 53(1), 63–76.
- Holmbäck, Å. (1922). *Om lapps-kattellandsinstituttet och dess historiska utveckling*. SOU 1922:10. Uppsala.
- Hultblad, F. (1968). *Övergång från nomadism till agrar bosättning i Jokkmokks socken*. Almqvist & Wiksell.
- Johansson, C. (1989). *Mujto. Minnen från jägar- och fiskartiden och den gamla renkonstens dagar*. Dialekt-, ortnamns- och folkminnesarkivet. Umeå.
- Johansson, H. & Flodin, J. (1989) *Arjeplogs lappskola. Bearbetade och kompletterade elevmatriklar för åren 1743 -1820 och 1863–1875*. Skriptum nr 18. Forskningsarkivet, Umeå universitet, Umeå.
- Kolmodin, T. (1914). *Folketro, seder och sägner från Pite lappmark. Lapparne och deras land*. Skildringar och studier III utgifna af Hjalmar Lundbohm. A. B. Nordiska bokhandeln.
- Korpjääkko-Labba, K. (1994). *Om samernas rättsliga ställning i Sverige-Finland. En rättshistorisk utredning av markanvändningsförhållanden och - rättigheter i Västerbottens lappmark före mitten av 1700-talet*. Juristförbundets förlag, Helsingfors.
- Lindgren, F. (1975). Observations on the Siberian jay (*Perisoreus infaustus*)-mainly its breeding biology. *Fauna Flora*, 70, 198–210.
- Lundmark, H. (2020). *Clear-cutting - The most discussed logging method in Swedish forest history*. PhD dissertation, Sveriges lantbruksuniversitet, Umeå., Acta Universitatis Agriculturae Sueciae, 1652–1688.
- Manker, E. (1957). *Lapparnas heliga ställen*. Acta Lapponica XIII. Nordiska museet. Gebers. Stockholm.
- Manker, E. (1968). *Skogslapparna i Sverige*. Acta Lapponica. XVIII. Nordiska museet. Almqvist & Wiksell. Stockholm.
- Mebius, H. (1968). *Värro. Studier i samernas förkristna offerriter*. Almqvist & Wiksell. Stockholm.
- Mebius, H. (2003). *Bissie: studier i Sámiisk religionshistoria*. Jengel, Östersund.
- Nordberg, E. (1973). *Källskrifter rörande kyrka och skola i den svenska lappmarken under 1600-talet*. Kungl. Skytteanska samfundet, Umeå.
- Norstedt, G. (2018). *A land of one's own: Sámi resource use in Sweden's boreal landscape under autonomous governance* (Doctoral dissertation, Department of Forest Ecology and Management, Swedish University of Agricultural Sciences).
- Östlund, L., Laestander, S., Aurell, G., & Hörnberg, G. (2022). The war on deciduous forest: Large-scale herbicide treatment in the Swedish boreal forest 1948 to 1984. *Ambio*, 51(5), 1352–1366.
- Östlund, L., & Norstedt, G. (2022). Preservation of the cultural legacy of the indigenous Sámi in northern forest reserves—Present shortcomings and future possibilities. *Forest Ecology and Management*, 502, 119726.
- Östlund, L., Zackrisson, O., & Axelsson, A. L. (1997). The history and transformation of a Scandinavian boreal forest landscape since the 19th century. *Canadian Journal of Forest Research*, 27(8), 1198–1206.
- Östlund, L., Zackrisson, O., & Hörnberg, G. (2002). Trees on the border between nature and culture – Culturally modified trees in boreal Scandinavia. *Environmental History*, 7(1), 48–68.
- Rautio, A. M., Josefsson, T., Axelsson, A. L., & Östlund, L. (2016). People and pines 1555–1910: Integrating ecology, history and archaeology to assess long-term resource use in northern Fennoscandia. *Landscape Ecology*, 31(2), 337–349.
- Rheen, S. (1983 [1671]). En kortt relation om lapparnes lefverne och sedher, wijdskiepellsser, samt i många stycken grofwe wildfarellsser. In: Wiklund, K.B. (ed.) *Berättelser om samerna i 1600-talets Sverige*. Kungl. Skytteanska samfundet, Umeå
- Ruong, I. (1945). *Studier i lappsk kultur i Pite lappmark och angränsande områden*. Svenska Landsmål och Svenskt Folkliv, Stockholm.

- Rydving, H. (1995). *The end of drum-time: Religious change among the Lule Saami, 1670s–1740s*. Almqvist & Wiksell.
- Rydving, H., & Kristoffersson, R. (1993). Några Sámska Offerplatser. *Fornvännen*, 88, 195–210.
- Ryen, A. (2004). Ethical issues. *Qualitative research practice*, 230–247.

Ulfstrand, S. (2003). Ur lavskrikans familjeliv. [From the family life of the Siberian jay.] *Vår Fågelvärld* 62 (7): 30–31.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.