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The shifting society syndrome: Values, baselines, and Swedish forest conservation in the 1930s and 2010s

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Abstract

This study addresses a response to shifting baseline syndrome (SBS), a syndrome implying that land managers' acceptance of environmental change declines gradually due to lack of historical knowledge. Some actions to counteract SBS are haunted by methodological problems associated with measuring natural states and ignoring societal effects on ideas of naturalness. To balance methodological discussions of SBS, this study analyzes the social contexts of baseline demarcations historically. It compares baselines in two Swedish forest conservation debates-about the Fiby forest in the 1930s and the Ojnare forest in the 2010s-focusing on scalable and unscalable values. To operationalize shifting societal criteria for baseline demarcations, we introduce the "shifting society syndrome" concept. The study identifies several societal shifts and shows that Fiby's baseline was shaped by the scalable value of age and the nonscalable values of uniqueness and Swedishness, and Ojnare's by the scalable value of biodiversity and the nonscalable values of uniqueness and wildness. We argue that values, scalability, and historical change are crucial variables in the practice of demarcating baselines and that intellectual history is a useful tool for methodological self-reflection in SBS research.

KEYWORDS

Fiby, forest conservation, forest history, naturalness, Ojnare, scalability, shifting baseline syndrome, values

INTRODUCTION 1

This study addresses a response to shifting baseline syndrome (SBS). SBS initially described a marine dilemma (Jackson et al., 2001; Jackson, Sala, & Alexander, 2011; Pauly, 1995; Pitcher, 2005). Each generation of fishery scientists begins with smaller fishing stocks than the one before. However, instead of applying historical perspectives, fishery scientists use their generational baselines as the limits of acceptance when evaluating marine change.

The shifting baselines of fishery scientists thus stimulate fish decline. From addressing fishery scientists' "generational amnesia" (Papworth, Rist, Coad, & Milner-Gullund, 2009), researchers turned to historical inquiries into natural baselines-everything from ecosystems unaffected by large-scale cropping systems to ecosystems existing before humans (Pitcher, 2005; Pitcher & Pauly, 1998). The intention was to present more adequate reference points for evaluating marine change and restoring stocks and species compositions. The SBS concept

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eventually spread from marine discussions to discussions of other conservation and environmental targets (e.g., Collins, Bohm, & Collen, 2020; Di Marco et al., 2014; Rittenhouse, 2010; Soga & Gaston, 2018).

Inquiries into natural baselines in response to SBS have been haunted by a methodological problem: How do we measure ancient natural states? First, scientifically usable data on plants and animals have been gathered for just a few centuries at most. Second, anthropogenic effects on ecosystems are vast, often long term, and difficult to isolate. Third, demarcating natural states is a process deeply affected by goals, priorities, and other contextual factors. Yet, while the first two aspects have received their share of attention (e.g., Bonebrake, Christensen, Boggs, & Ehrlich, 2010; Rodriguez et al., 2019), the third one has not. In the discussion of SBS, only a few studies address concepts such as naturalness, the assumption that humans exists outside nature, and that society's effects on baseline criteria can be ignored (e.g., Campbell, Gray, Hazen, & Shackeroff, 2009; Hilding-Rydevik, Moen, & Green, 2018; Smout, 2010). Note that this methodological issue is a problem for certain counteractions to SBS, and not necessarily observations stating that land managers tend to overlook long-term environmental changes.

To balance the methodological discussions of SBS, this study analyzes the social contexts of baseline demarcations historically, by comparing baseline demarcations in two Swedish forest conservation debates. The first one occurred in the 1930s and disputed whether the Fiby forest outside of Uppsala was primeval or not. If the forest was categorized as primeval, legitimate arguments could be made for protecting the forest as a nature reserve; if the forest was not so categorized, the State Forest Directorate would start logging (Lundgren, 2011). The second debate occurred in the 2010s and concerned the Ojnare forest on the island of Gotland. When a limestone company included the area of the forest in its mining plans, numerous stakeholders took action to make it a nature reserve (Anshelm, Haikola, & Wallsten, 2018a). Both debates emerged from clashes between conservation and exploitation interests.

The study is thus associated with the intellectual history of scientific resource management. This is a vigorous field that has long explored ideas, ideologies, rationales, and other social and cultural factors affecting natural resource governance (e.g., Bashford, 2013; Hays, 1959; Loo, 2006; Merchant, 1980; Nash, 2014; Scott, 1998; Warde, 2018; Worster, 1994). By extension, we hope that our approach will open SBS research to influence from intellectual history and related fields such as environmental history and science and technology studies.

The analysis is not limited to statements about naturalness. Several scholars have already explored the concept of naturalness in relation to conflicts about

conservation and natural resource management (e.g., Jørgensen, 2017; Siipi, 2004). Yet others have addressed the demarcations of natural states as a valuebased operation based on assumptions about intrinsic realms outside, or predating, human society (e.g., Asdal, 2003; Campbell et al., 2009; Cronon, 1996). Instead, we focus on what might be called the shifting society syndrome (SSS). By this, we refer to a historical interplay between values and baselines according to the following dynamic: Conservationists in different social contexts value environments worthy of protection differently, stressing dissimilar values when demarcating baselines. Social contexts are, moreover, historically mutable, which is why relationships between baselines and value compositions change over time. Shifting social contexts thus lead to the protection of different kinds of environments (unlike SBS, which leads to fewer natural environments). When used as an analytical perspective, SSS illuminates the historicity of baseline criteria, including the ones used to address SBS.

By categorizing values, we use the duality of scalability and non-scalability (Tsing, 2015). Scalable units can be generalized into larger ones without corrupting their original proportions. They are furthermore measurable and designed to fit tables, schemes, and other quantitative formats. Nonscalable units, in contrast, lose their essential features when generalized, are impossible to quantify, and are often explicitly associated with ideology and future expectations. Translating units into values, we regard, for instance, yield and biodiversity data as scalable values, and standards of beauty and well-being as nonscalable values.

Both types of values regularly drive conservation issues, but not in symmetrical ways. A look at the history of environment conservation and governance reveals the following patterns: At its birth in the late 19th century, the conservation movement emphasized values such as uniquely beautiful scenery, that is, what we call nonscalable values (Nash, 2014). Yet, when ecosystems ecology and environmental expertise gained influence in the 1960s, conservation took a turn toward what we call scalability-fragile ecosystems, ecosystem services, the IUCN Red List of Endangered Species, and so on (Lidskog, 2014; Sörlin, 2013; Worster, 1994). Starting in the 1980s, neoliberalism, deregulation, and depoliticization cleared the way for tendencies to treat environmental and natural resource governance as a mere technological undertaking, instead of as an ideological endeavor, one best handled by technocrats and free markets (e.g., McCarthy & Prudham, 2004). This development further enforced the orientation toward scalability. However, neoliberalism, deregulation, and depoliticization are far from necessary conditions for orientations toward scalability. Undertakings such as inventories of IUCN Red List species are regularly

executed with strong environmental regulations in mind. Given developments such as this, the analysis of Fiby and Ojnare is oriented toward the historical dynamics between scalable and nonscalable values, that is, toward how the values have interacted in particular historical contexts and how they have changed over time.

With this study, we achieve two things. First, we show how values in terms of scalability along with historical change are crucial variables in the practice of demarcating ecological baselines. Second, we provide tools with which to address conservationists' viewpoints and to conduct methodological self-reflection within research into SBS. Regarding the latter objective, we particularly stress the utility of intellectual history.

2 | METHODS

Our main source material consisted of argumentative texts. However, due to different media landscapes and social conditions in the 1930s and the 2010s, the analysis of the debates required two selection principles.

The Fiby debate, which took place in newspaper articles and scientific papers, comprised around 30 texts, all considered here. The newspaper material mainly comprised minutes and interviews but also included a few essays, while the scientific material comprised reports, research articles, and even a 230-page monograph. Most of the texts were written by or addressed the opinions of two antagonistic botany professors who were part of the scientific elite in Stockholm and Uppsala. Consequently, besides a clash between institutions supporting conservation and exploitation interests, the texts reflect a conflict between people who knew each other through education, research, boards, committees, and so forth. Several texts were characterized by a devoted and, indeed, a rather antagonistic attitude.

The Ojnare debate mainly played out in newspapers, but was constituted by a comparatively large number of texts: about 2,500. To identify texts in which relevant actors, institutions, and organizations connected the Ojnare forest to values regarded as worthy of protection, we scanned the media archive Retriever Research (containing all press material from the debate). The following delimitations were used: First, we searched for the standpoints of institutions and organizations such as the Swedish Environmental Protection Agency and Preserve the Ojnare Forest, which promoted the conservation side of the debate. These institutions and organizations were identified through previous research and initial readings of the press material. Second, we focused on the newspapers that covered the debate most frequently: local Gotland newspapers such as Gotlands tidningar and Gotlands allehanda, national newspapers such as Dagens nyheter and Svenska

dagbladet, and papers with an environmental orientation such as *Dagens ETC*, *Miljöaktuellt*, and *Miljömagasinet*. The number of texts considered for analyzing the Ojnare debate was, after these delimitations, around 400. We also included a few legal documents and one website, to deepen our interpretations. All source materials are available at the National Library of Sweden and Svea Court of Appeal.

The included Ojnare newspaper material comprised columns and debate articles, but also interviews and reports conveying important actors' arguments. In general, the texts were both polarized and emotional in tone. These features were also significant in the more neutral reports, since they mainly covered highly polarized situations such as upsetting court decisions, heated political debates, and large protests. In contrast to the Fiby debate, the people writing or portrayed in the Ojnare texts came from all kinds of social environments: parliament, mining industry boardrooms, state authorities, environmental NGOs, botany associations, local initiatives, lime industry workers, and so forth. Nevertheless, being interested in the actors, institutions, and organizations promoting the debate, we have mainly cited texts representing organized conservation interests.

This type of material has two implications relevant to the present results. First, we captured scientists', conservationists', state administrators', and other groups' *arguments* rather than actions. Second, we captured values adapted to certain historical situations, not the inner convictions of individuals or the everyday values of people. The debaters connected their conservation claims (or exploitation rationales) to writings in contemporary legislation, guidelines, and political visions in order to obtain political effects. For example, Fiby and Ojnare conservationists stressed "primitiveness" and "biodiversity," respectively, because these values mattered in contemporary policies and legal documents.

The text analysis comprised four steps. First, arguments about baselines were identified in the debates. The historical actors' rationales and not their word use functioned as selection criteria. For instance, when conservationists noted Fiby's "primitiveness," we interpreted this as a baseline demarcation. Second, from this material we categorized scalable and nonscalable values justifying the actors' baseline demarcations. Third, the values were related to historical contexts constructed by previous research. Fourth, the findings regarding the 1930s and 2010s were compared to reveal historical patterns.

3 | RESULTS

3.1 | Outline of the Fiby debate

Fiby is an 87-ha nature reserve dominated by spruce (*Picea abies*) and Scots pine (*Pinus sylvestris*), 20 km west

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of Uppsala. The process of removing the forest from forestry lands started in 1914 and ended in 1965, but the Fiby debate occurred in the 1930s. In the 1920s, the government sent the Fiby case to the Royal Swedish Academy of Science's committee for nature conservation-at the time a formal conservation advisory body. The committee needed to determine the area's value as a reserve, considering, among other things, whether Fiby was actually "primeval" ("urskog"). They forwarded the question to the Swedish Institute of Experimental Forestry, under the Department of Agriculture, and thereby started the debate. Professor Henrik Hesselman, botanist at the Institute, concluded that Fiby was not primeval and was of minor interest as a reserve. Professor Rutger Sernander, botanist at Uppsala University and initiator of the Fiby case, opposed Hesselman and argued that the forest was primeval and in urgent need of protection. Both Hesselman and Sernander were also board members and for periods presidents of the Swedish Society for Nature Conservation.

The conservation side of the debate, like the opposing side, consisted of a small and homogenous group: Sernander and his personal network of male academics, active in the scientific elite of Sweden. Having long used Fiby for student excursions and other scientific ventures, Sernander's motivation mainly concerned the forest's scientific utility. Fiby was, he argued, "invaluable study material" for botany in general and Uppsala botany in particular (Sernander, 1936). Sernander and his network moreover constituted the "Uppsala school," a botanical orientation stressing the methodological value of descriptive field studies (Söderqvist, 1986). As such, they took part in several controversies with the rival "Stockholm school," which was led by Hesselman and emphasized, in contrast, experimental laboratory botany. These circumstances likely fueled the debate with a substantial amount of personal feeling.

Hesselman's and Sernander's standpoints were developed in scientific papers during the 1930s (Hesselman, 1934, 1935a, 1935b; Sernander, 1934, 1935, 1936). Hesselman admitted that Fiby had grown wild for some time, but argued from field observations and various analyses that it had historically been affected by grazing and other cultural activities. Additionally, he collected historical data about the forest, indicating agricultural forest use and faience production in the 18th century. In contrast, Sernander (1936) argued that Fiby had been "a closed natural forest" "from the Bronze Age until today." He had visited and analyzed the forest numerous times and, like Hesselman, supported his case with historical records, describing storm gaps instead of agricultural clearings.

Fiby's fate was simultaneously discussed in the newspapers. While the scientific papers presented evidence of primitiveness or cultural influences, many newspaper articles primarily asked why this primeval forest should not be saved, based on the assumption that Sernander was right. For instance, one headline summarized the conflict as "Professors in tug-of-war conflict about the primeval forest's value" (Professorer i dragkamp, tvist om urskogens värde, 1935).

3.2 | Between storm gaps and national myths

Sernander associated Fiby with three particular values: age, uniqueness, and Swedishness. The main proof of Fiby's considerable age originated from material indicators such as storm gaps located through field observations, drill core analyses, and historical research (Sernander, 1936). A primeval spruce forest contained, Sernander (1936) stated, more "aged trees than the ordinary spruce forest," though not a large number of remarkably old and thick trees. Instead, he claimed that primeval spruce forests regenerated themselves through interactions between storm gaps and dwarf trees, a process resulting in old forests constituted by many young trees. Use of the storm gap as an indicator of old age, and ultimately primitiveness, was a response to drill core analysis executed by Hesselman (1935a). Hesselman stated that the growth in diameter of certain Fiby spruces resembled spruce growth in nearby pastures and indicated good lighting conditions during the trees' youth. Hence, according to Hesselman, Fiby had not always been dense and dark.

Data describing Fiby simply as old would be of minimal conservation use if age was not connected to politically negotiable values such as uniqueness and Swedishness, that is, that the forest was regarded as one of a kind from a national perspective and, additionally, representative of what was seen as a particularly Swedish landscape. For instance, Fiby was claimed to be of "great significance as a research object" (Fiby urskog: naturminne och forskningsobjekt av stor betydelse, 1934) as, among other things, Sernander and his colleagues had used it for student excursions. Fiby was considered of such importance because it seemed to fill a niche in Sweden's protected areas. The coniferous forest "cries for a more complete representation within" Swedish nature conservation, the Swedish Phytogeographical Society argued with reference to Fiby (Växtgeograferna vädja varmt för "Fiby urskogs" liv, 1934). The society was led by Sernander's son-in-law, Professor Einar du Rietz. Sernander also stated that he tried to prevent a "disaster for

the Swedish nature conservation" (Sernander, 1936). The values of uniqueness and Swedishness had mythical dimensions as well. The poet, Sernander acolyte, and president of the Swedish Society for Nature Conservation Sernander (1935) stated that expanses "of primitive forests help us to understand the temperament of the Swedish people" ("det svenska folklynnet"). He also depicted the ancient Nordic god Ullr asleep in Fiby-"the last of his pagan Upplandic forests" (Selander, 1934).

Age was additionally connected to aesthetic standards. For instance, Selander (1939) used storm gaps and other age indicators to evoke vivid images of a harsh Darwinian nature. The Fiby trees were growing in "eternal dusk," constantly struggling against "starvation" and "suffocation." Yet aesthetics did not necessary support Sernander's case. Hesselman described Fiby in fairytale terms. example, as "bewitching" for ("trolsk") (Fibyskogen är trolsk, men ingen urskog, 1935) and suggested that Sernander had confused primitiveness with omitted management measures, that is, the forest only appeared to be primeval (Hesselman, 1934).

Baselines as responses to the 3.3 industrialization of national landscapes

As a general context explaining the baseline demarcations of Fiby, we used the industrialization of Swedish landscapes. Taking inspiration from Germany and the United States, the Swedish conservation movement emerged at the turn of the 20th century. It was a distinctly bourgeois undertaking mainly populated by scientists like Hesselman and Sernander. The movement strove to protect untouched lands, primarily as part of a nationalistic enterprise. For instance, the Swedish Society for Nature Conservation (founded 1909) initially set out to limit the landscape effects of industrialization by spreading "love" and "knowledge" of Swedish nature (Haraldsson, 1987; Lundgren, 2009). This nationalistic orientation broke down into two rationales: the scientific and antiquarian arguments (Lundgren, 2009; Sundin, 2006). The former stated that scientists needed untouched lands in order to make comparisons with Sweden's managed lands, the latter that future generations would be strengthened by viewing pure national nature. To these ends, the prime means of conservation was setting aside "nature heritage sites" ("naturminnen"), that is, areas recalling the idea of true Swedish nature, as reserves or national parks (Mels, 1999; Nordlund, 2001). As conservationists, both Hesselman and Sernander were strong advocates of the scientific and antiquarian arguments (e.g., Andersson & Hesselman, 1907; Sernander, 1917).

Given this context, we conclude that Fiby's baseline demarcations were constituted by the scalable value of age and the nonscalable values of uniqueness and Swedishness. These values were part of the scientific and antiquarian arguments and, as such, were dependent on each other: quantifiable ancient features were interesting due to nationalistic expectations of "original" Swedish landscapes. It should be noted that the values of age, uniqueness, and Swedishness were articulated under pressure from the State Forest Directorate's exploitation plans and were specified to suit contemporary conservation rationales. This contextual interpretation does not expose the values as corresponding less to the actual forest, but provides a social explanation as to why these qualities in particular, and not, for example, the forest's animal life, were emphasized.

Why did Hesselman and Sernander disagree? Although different interpretations of empirical observations were important, more than past storms kept the debate going. Historians of U.S. natural resource debates distinguish "conservationists"-aiming for efficient resource use for the sake of humans-from "preservationists"-striving to save wilderness for its own sake (Hays, 1959; Nash, 2014). The former position could be ascribed to Hesselman: he worked for the Department of Agriculture and elaborated research agendas stimulating the optimization of national forest production (Jönsson, 2019). Sernander could analogously be seen as a preservationist given his programmatic interests in natural states as both a researcher and conservationist (Wijkander, 2017). They thus represented different responses to industrialization. The dissimilarities should not, however, be exaggerated. When addressing industrial effects on nature, Sernander and his peers mostly preferred compromises (Mårald & Nordlund, 2020). Another dimension of the conflict was probably Hesselman's and Sernander's enmity through their competing botanical schools.

Outline of the Ojnare debate 3.4

Ojnare is a forested part of a 1,494-ha Natura 2000 areaa reserve network created by the European Unionsurrounding Lake Bästeträsk in northern Gotland. The Ojnare debate began in 2005 when the Finnish limestone company Nordkalk applied to the Mining Inspectorate of Sweden to open a limestone quarry in the Bunge Ducker area where Ojnare is located. Simultaneously, the Swedish Environmental Protection Agency was considering the Ojnare and Bästeträsk areas as national park candidates, if the quarry plans were abandoned. The Agency was motivated by Ojnare's strategic location between two existing Natura 2000 areas. The mining plans were also

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controversial since Lake Bästeträsk functioned as a water reservoir. Nordkalk's actions triggered massive nationwide protests. In 2017, after negotiations in the Environmental Court, Environmental High Court, national media, government, and Supreme Administrative Court, Ojnare gained the status of a Natura 2000 area and the debate faded.

The debate's conservation side was, unlike Fiby's, rather heterogeneous, including various environmental NGOs and the Swedish Environmental Protection Agency as well as individual journalists, scientists, and politicians. Still, the debate relied heavily on local initiatives like the organization Preserve the Ojnare Forest (formed in 2005) and on Gotland inhabitants without organized connections to environmental associations. The exploitation side was less multifaceted, but included other stakeholders besides the mining industry. Most noteworthy, the quarry was supported as a source of future jobs by influential representatives of the Social Democratic Party (ruling Sweden with the Green party from 2014, and during the rest of the Ojnare debate), the union for Swedish industry workers, and local lime industry workers. The quarry application was also supported by data from the Geological Survey of Sweden, a state expert agency.

Although the diverse members of the conservation side joined forces in the task of safeguarding things such as drinking water, nature tourism, and the plant and animal life of Ojnare, their underlying motives were different. The Swedish Environmental Protection Agency, for example, strove to fulfill its function as a state expert authority responsible for creating national parks and for other aspects of environmental protection. Other members of the conservation side identified the quarry plans as part of a worldwide conflict between the environment and economic growth (e.g., Lööf, 2012). Yet others were fueled by personal connections to Ojnare, mainly channeled through Preserve the Ojnare Forest (e.g., Simonson, 2012).

The Ojnare debate primarily occurred in courtrooms and the media. Although local Gotland newspapers paid extra attention to the issue, media outlets ranging from large nationwide newspapers to small specialized magazines focusing on environmental issues dedicated numerous articles, columns, and editorials to Ojnare.

3.5 | Between local species inventories and global outlooks

The conservation side of the Ojnare debate associated the forest with various values, primarily biodiversity and uniqueness, but in some cases wildness as well. The biodiversity of Ojnare was repeatedly described by citing a set of critical species, such as the Gotland snake (*Natrix natrix gotlandica*), the hawkweed *Pilosella dichotoma*, and the lichen *Psora testacea* (e.g., Bevara Ojnareskogen, 2020; Röhne, 2012; Sundberg & Simonson, 2009; Tas & Säfve, 2008). Moreover, debate articles and reports describing the conflict repeatedly described Ojnare's biodiversity by citing the approximate figure of 250 IUCN Red List species, located in the Swedish Species Information Centre's inventories (e.g., Enström, 2015; Gustafsson, 2012).

The value of biodiversity was interwoven with the value of uniqueness, meaning that Ojnare with its numerous endangered species—some of them endemic had exclusive "natural values." On one hand, the debaters invoked national considerations. The Bästeträsk area was "a Swedish jewel" with "unique natural values," one debate article stated (Wirtén, Wanneby, Söderdahl, & Vikström Olsson, 2015). The piece was written by representatives of both local protest groups such as Preserve the Ojnare Forest and international environmental organizations such as the World Wide Fund for Nature. On the other hand, the debaters invoked global considerations as well. The guarry would destroy "world-unique occurrences of valuable species," stated one article by representatives of the national conservation organizations the Swedish Society for Nature Conservation and Nature and Youth Sweden (Karlsson & Vikström Olsson, 2012). World uniqueness was also a key value for the Swedish Environmental Protection Agency. For instance, when the quarry plans seemed to find legal support, an Agency biologist asked: "If we cannot protect areas regarded as world unique by the government's expert authority, which areas can we then protect?" (Gustafsson & Thurfjell, 2012). A general connection between Ojnare and global natural resource management and land rights issues was also made in several articles (e.g., Destouni et al., 2014; Greider, 2016; Lööf, 2012).

Some conservationists also stressed wildness as a value threatened by the quarry. For instance, one group of protesters, consisting mainly of scientists and other academic professionals, feared "a gigantic pit in the center of Gotland's last wilderness area" (Destouni et al., 2014). Conservationists stressing wildness did not define it as a state literally unaffected by humans, but used the concept as a slogan, frequently reinforced by other values. For example, one debate article written by representatives of a local conservation network stated that Ojnare "is Gotland's last large coherent area of wetlands and primitive forests," then emphasizing the place's utility as a water reservoir (Nobell et al., 2010). Similarly, the association Preserve the Ojnare Forest described Ojnare as "Gotland's largest wilderness area" on its website (Bevara Ojnareskogen, 2020), but, in the heat of

litigation, did not claim Ojnare to be literally untouched (e.g., Mark-och miljööverdomstolen, 2018). It should be noted that representatives of institutions such as the Swedish Environmental Protection Agency did not stress wildness in the case of Ojnare.

Additionally, as mentioned, drinking water, nature tourism, and other utilities played a crucial role for the protesters. However, since these aspects were not used to demarcate the forest's character, they are not discussed here.

3.6 Baselines as responses to global environmental problems

As the context explaining the baseline demarcations of Ojnare, we used the globalization of environmental issues. During the 1960s and 1970s, experts from, for example, ecology, glaciology, and climatology gained legitimacy as political exponents (Warde, Robin, & Sörlin, 2018; Warde & Sörlin, 2015). This expertise contributed to the globalization of environmental issues by connecting measures addressing wetlands, coral reefs, and other local sites with global, rather than purely national, agendas (Sörlin, 2013). Eventually, the environmental and conservation movement underwent processes of pluralization and democratization and ceased to be a strictly scientific and bourgeois forum (Bocking, 2020). The experts were joined by a large range of stakeholders and activist groups—as would be the case in, for instance, Ojnare. By means of this movement, quantitative environmental terms such as "ecosystem," "resilience," and "biodiversity" took root in international natural resource discourses. Instead of being a national project, conservation was now linked to international quantitative ventures such as the IUCN Red List, inventories of key biodiversity areas, and the Natura 2000 network (Beckman, 2012; Gustafsson & Lidskog, 2013; Nygård, 2013).

Conservationists safeguarding forests from deforestation or intensive management picked up the concept of biodiversity in the 1980s (Lisberg Jensen, 2002). As the IUCN Red List and the like became cornerstones of biodiversity policy, forest conservation developed into an enterprise of data and figures. Along with foresters and scientists, environmental activists set out to map landscape features in order to make quantitative claims about the greater relationship represented by, for example, particular bird species or rotting woody debris (Berglund, 2000; Turnhout, Waterton, Neves, & Buizer, 2013). The orientation toward forest biodiversity was part of a path taken in the 1970s, when the Swedish conservation movement aligned itself with global natural resource conflicts and took a strong stand against intensive forest management (Lindkvist et al., 2012; Lindkvist, Kardell, & Nordlund,

2011; Lisberg Jensen, 2011). While criticizing monocultures, clear cutting, and other techniques, conservationists began using dichotomies such as living forests-timber fields and natural forests-production forests (Anshelm, 2004), dichotomies invoked by some Ojnare protesters as well (Thoresen, 2012).

Given this context, we conclude that Ojnare's baseline demarcations were constituted by the scalable value of biodiversity and the nonscalable values of uniqueness and, to some degree, wildness. As in Fiby, these values depended on each other: the measurable 250 IUCN Red List species were important in light of the area's uniqueness. However, while we found uniqueness defined in relation to both national and global outlooks, we stress the latter perspective. The heart of the Ojnare debate lay essentially in transnational projects such as the IUCN Red List and the Natura 2000 network, and the lime industry's actions were repeatedly related to global environmental issues. It should also be noted that these values were specified in response to the threat of exploitation, and were connected to rationales believed to counteract the quarry plans. As in the case of Fiby, this contextual interpretation does not imply that statements about species richness and other qualities did not correspond to realities in the forest. Instead, it provides a social explanation as to why the actors particularly stressed values such as biodiversity and uniqueness, and not, for instance, the forest's age.

The main driver of the Ojnare debate was-as in Fibythe clash between exploitation and conservation interests. Besides the values at stake, the debates differed in several ways. First, the Ojnare forest's main scalable value was not challenged. The quarry advocates instead questioned the forest's uniqueness and weighed it against another scalable value: job opportunities (e.g., Gahnfelt, 2010; Nilsson, 2015), a value also dividing the government, from 2014 constituted by Greens and Social Democrats. The quarry advocates also downplayed the quarry's risk to plants, animals, ecosystems, and drinking water (e.g., Kihlberg, 2015). Second, the Ojnare protesters exemplify the pluralization and democratization of the environmental movement. While a small homogeneous group of university botanists fought for the conservation of Fiby, the Ojnare protesters comprised multiple and various groups and institutions, extending from state authorities and established environmental organizations to grassroots activist networks and local botany associations. demonstrated elsewhere (Anshelm, Haikola, As & Wallsten, 2018b; Anshelm & Haikola, 2018; Kaijser & Wallsten, 2018), the protesters set ideological differences aside and united around the particular point at issue, implementing a strategy of generalizing the conflict from a local problem to a broader matter of great urgency, such as liberal mining legislation.

4 | DISCUSSION

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SSS indicates a methodological pitfall in undertakings to counteract SBS by means of inquiries into natural baselines. As stated, these inquiries are haunted by the problem of measuring natural states without addressing societal factors constituting ideas of naturalness. Learning from our study, we argue the following:

Values in terms of scalability in combination with historical change are crucial variables in the practice of demarcating ecological baselines—natural ones as well as those representing other states. Fiby's baseline demarcations were shaped by the scalable value of age and the nonscalable values of uniqueness and Swedishness, and Ojnare's by the scalable value of biodiversity and the nonscalable values of uniqueness and, in some cases, wildness. Thus, several societal shifts leading to changed goals, priorities, and other contextual aspects, and ultimately the protection of different environments, had occurred between the cases.

We wish to emphasize five such shifts in particular. First, as suggested in the introduction, the general status of quantitative data had changed. An increasing "trust in numbers" (Porter, 1995) is evident in the historical sources in at least one important way. Both Fiby's and Ojnare's baselines were supported by quantitative indicators (e.g., storm gaps and IUCN Red List species), but while Sernander used indicators as means, that is, to save the Fiby forest as a whole, including all other values of the forest, the Ojnare advocates instead used them as ends, that is, as objects of conservation politics. Second, the core scalable value had changed from age to biodiversity. Age is indeed invoked in contemporary forest debates, but seldom without the support of biodiversity. Third, conservationists as a group had undergone processes of pluralization and democratization. While a few scientists and public intellectuals populated the Fiby debate, the Ojnare debate was constituted by numerous and varied stakeholders from different social classes and groups, although it was heavily reliant on scientific knowledge (cf., Warde et al., 2018). Fourth, the framing of the forests' uniqueness had changed from national to international and global. Fiby's uniqueness was based on unscalable nationalistic projects and Ojnare's on quantitative transnational undertakings. Besides freeing conservation from nationalistic settings and language, the transnational dimension had provided species inventories and similar practices with transnational or universal legitimacy (cf., Gustafsson & Lidskog, 2013). Fifth, statements about literal naturalness had moved from the center to the periphery of the conservation debate, that is, from being supported by the scalable value of age to being supported by the unscalable value of wildness. As more land is affected by anthropogenic factors, it gradually becomes harder to find ecosystems with stable pasts (Hirsch & Long, 2020). It is therefore likely that calls for naturalness will eventually become obsolete, or be radically reshaped (e.g., Asdal, 2008). Of course, these historical patterns do not deny the existence of other parallel processes that can be studied through other cases.

Also based on our study, we argue that the intellectual history of scientific resource management is a useful tool with which to address conservationists' viewpoints and conduct methodological self-reflection within SBS research. We have shown that environments seen as worthy of protection are entangled with particular historical contexts that emphasize certain values. Consequently, baselines used to justify conservation measures or to formulate conservation strategies have historically responded to changing intellectual settings and societal challenges, and will continue to do so in the future. Even "natural environments," stressed as means to process SBS, must submit to this condition. Applying intellectual history to baseline demarcations helps us improve the conservation starting point and form more reflexive responses to SBS. This implies, among other things, that we should evaluate natural resource management according to dimensions of the evaluator's past, present, and future (cf., Mårald, Sandström, & Nordin, 2017), and also that we should acknowledge the fluid character of objectivity (cf., Daston & Galison, 2007), that is, that "nature" and "natural" are scientific categories that change over time. The contingent nature of baselines also suggests that we should orient efforts to counteract SBS toward future goals rather than untouched pasts (cf., Choi, 2007).

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

AUTHOR CONTRIBUTIONS

Jimmy Jönsson collected and analyzed the historical sources. Jimmy Jönsson and Erland Mårald developed the methodology. Jimmy Jönsson wrote the manuscript with contributions from Erland Mårald and Tomas Lundmark. Jimmy Jönsson, Erland Mårald, and Tomas Lundmark developed the idea of the study.

DATA AVAILABILITY STATEMENT

All historical sources are available at the National Library of Sweden, and in a few cases, the Svea Court of Appeal

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and the Archive of the Swedish University of Agricultural Sciences. See Data S1, Supporting Information for full list of sources.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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