



Research article

The effect of personal values and the roles on representational principles in natural resource management decision-making

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ABSTRACT

The aim of this article is to explore how personal values and the role of the representative influence representation principles when making decisions in natural resource management. This was tested in an empirical case of wildlife management in Sweden, the regional Wildlife Conservation Committees (WCCs). These WCCs consist of a mix of actors in collaborative settings, where both politicians and interest organization representatives make decisions on wildlife related issues. The results show that the value dimension of self-enhancement, associated with giving importance to values such as achievement and power, significantly affects a representational style associated with following the representative's personal preferences when making decisions, the trustee principle. The role of the representative also significantly affects representational style when making decisions in these cases, where the interest organizational representatives more often follow the party principle, i.e., the view of the parties or organization they represent, than the political actors. Age also had a significant impact where older representatives relied more on the trustee principle than their younger peers. The implications of these results are that personal values in this case matters for decision-making, which is in line with earlier research on decision-making on environmental issues. Further, politicians behave atypically for the Swedish context relying more on the trustee principle rather than the party principle, which policy makers should take into consideration when designing collaborative arenas similar to the WCCs.

1. Introduction

How do the representation of political parties and interest organizations function when making environmental decisions in natural resource management? One possible answer to this question is that it depends on the decision-makers' personal *values*—the transsituational goals that serve as guiding principles in a person's life (see Schwartz, 1992). Values have been shown to be a significant determinant of decision-making in earlier research (for example, Lönnqvist et al., 2019; March and Olsen, 1989; Myyry et al., 2009; Abramson et al., 2018; Kruse et al., 2018), especially for environmental governance (see Stern, 2000; Steg and Vlek, 2009; Sagiv et al., 2011; Steg et al., 2012; Jagers et al., 2016).

Another possible answer to what effects the decision-making in natural resource management is whether the representative has a political mandate, i.e. takes part in the decision-making in the role of being a politician. Having a political mandate differs from, for example, representing an interest organization and earlier research has shown that these actors differ in how they make decisions (Nilsson, 2018). However, there are also similarities. A politician is many times appointed to act in

accordance to the will of the political party and the interest organization representative mainly reach decision-making settings to influence decisions in line with the view of the represented organization.

In more traditional political arenas, such as parliaments and local councils, two representational principles guide how the decision makers relate to their roles as representatives and are important guidelines for their decisions (Esaiasson and Holmberg, 1996; Skoog, 2011; Nilsson, 2015). The first principle, the trustee principle, emphasizes decision-making in line with the representative's personal preferences, since the representative has been given a mandate to make decisions in the role of an informed, competent actor (see Eulau et al., 1959; Prewitt et al., 1966). The second principle, the party principle, instead focuses on a representational style in which the representatives rely more on following the will of the political party than their own personal views and preferences (see Bäck, 2000; Karlsson and Gilljam, 2014). However, studies of the role of these representational principles, when making decisions in less traditional, political arenas, are scarce. Natural resource management is an arena in which heterogenous actors meet and influence each other (Bodin and Crona, 2009), and many times this arena

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includes both political and interest organizational representatives (c.f. [Matti and Sandström, 2011](#)). Both the effect of personal values and the effect of the role of the representatives are important aspects to study when trying to understand and explain decision-making in such complex arenas.

The aim of the present article is to explore how personal values and the role of the representative influence representation principles when making decisions in natural resource management. To this end, we studied a setting, an arena for natural resource management, in which the composition of actors is heterogeneous. We know from previous studies that Swedish wildlife conservation committees (WCCs) meet this criterion. The WCCs are state-initiated collaborative governance arenas involving organized interests and political parties in formal decision-making processes on wildlife issues. Previous studies have shown how these committees involve actors with conflicting values and beliefs ([Matti and Sandström, 2011, 2013](#)), as well as differences in decision-making behaviour ([Nilsson, 2018](#)).

Our study contributes to studies on decision-making in political and administrative settings by deeper exploring the role of personal values in relation to representational style. Although prominent in natural resource management studies, the role personal values play in representational style and interact with guiding principles, the party and the trustee principles, are understudied. By highlighting the role of these values, we aim to further widen the research field in contrast to earlier findings focusing on explanatory variables such as the role of political parties in the institutional system ([Önnudóttir, 2017](#)) and short-term attitudes ([Bowler, 2017](#)). Finally, the study provides empirical insights into the role of values for decision-making behaviour in natural resource governance and collaborative arenas, which can be used to further understand the underlying conflicts of these often-heated arenas (see [Bodin and Crona, 2009](#); [Matti and Sandström, 2011](#)).

The results from this study provide insights and understanding on how individual factors, such as values, affect decision-making in such heated context as the management of natural resources, such as large carnivores. This has implications for other environmental issues, in which there are conflicting views on how to manage the natural resources, such as fish and forests. We expect that such cases also will produce differences in how actors view their representation, depending on their personal values and their kind of mandate (i.e., which actor category they belong to).

Values are commonly defined as the transsituational goals serving as guiding principles in a person's life, and they play a significant role in understanding social phenomena of various kinds, at both the micro and macro levels (see [Schwartz, 1992](#); [van Deth and Scarbrough, 1995](#)).¹ Values are relatively stable and enduring ([Schwartz and Bilsky, 1987](#)); they are ultimately held by individuals but constitute cultures when shared with other people (cf. [Almond and Verba, 1963](#); [Inglehart, 1990](#)). Further, and of particular importance in this study, values play a major role when prioritizing competing goals (see [Schwartz, 1992, 2010](#); [Steg et al., 2012](#)).²

This study departs from [Schwartz's value theory \(1992\)](#), which includes ten values that are universal and present across all cultures. Schwartz's value theory is one of the most commonly used sets of values in social science research, most notably in studies explaining various forms of environmental behaviour (see e.g. [Stern and Dietz, 1994](#); [Karp, 1996](#); [Stern, 2000](#); [Nordlund and Garvill, 2003](#); [Matti, 2009](#); [Steg et al., 2012](#); [van der Werff and Steg, 2016](#)). The ten values are conformity,

¹ The role of values has, for instance, been studied successfully in relation to environmental contexts (see e.g. [Schwartz, 1992](#); [van Deth and Scarbrough, 1995](#); [Matti, 2009](#); [Brugnach et al., 2011](#)).

² It is important to distinguish between values and beliefs, since the two concepts share some basic features and tend to be linked. A common way to separate the two is to think of values as more fundamental and general in character, whereas beliefs are more empirically oriented (see e.g. [Matti, 2009](#)).

tradition, benevolence, universalism, self-direction, stimulation, hedonism, achievement, power and security ([Schwartz, 2010](#)).

These values constitute a value system in which some values are complementary to each other while others are in stark conflict. For example, benevolence and conformity often interact to promote actions related to helping others. On the other hand, security and power tend to inhibit such pro-social behaviour ([Schwartz, 2010](#)). Further, previous studies on environmental behaviour have found that hedonism (seeking pleasure and gratification) correlates negatively with environmental behaviour, in contrast to values such as universalism, which encompasses appreciation of nature and the welfare of others. Accordingly, hedonism is an important factor to consider when exploring barriers to a behavioural change towards, for instance, more environmentally benevolent behaviour (cf. [Steg et al., 2012](#)).

From the above, it is clear that the values in Schwartz's value system interact and can be thought of as opposing clusters. The relationships between competing value clusters are demonstrated in two bi-polar dimensions ([Schwartz, 2010](#)). The first-dimension contrasts *conservation* and *openness to change*. This dimension highlights the conflict between values that promote order, preservation, and self-restriction (security, conformity, and tradition) and those that promote thought, independence of action, and readiness to change (the values of self-direction, hedonism, and stimulation). The other dimension contrasts *self-enhancement* and *self-transcendence*. The main conflict here lies between values that concern the welfare and well-being of others (universalism and benevolence), and those that are related to the pursuit of self-interest (achievement and power). It is thus important to acknowledge how the values are related to each other on these two dimensions in order to explore how values influence decision-making behaviour.

The role of values has also been acknowledged in studies of how actors comply with rules. For example, [Scott \(2003, p. 18\)](#) stresses that values are part of any social grouping of individuals as "the criteria employed in selecting goals of behaviour". [Simon \(1997\)](#) shares a similar view, and describes values as assumptions of what ends are desirable or preferred when making decisions. Values are, however, underplayed when studying the representational principles, which is the focus of the present article. Instead, other explanations (such as the size of the constituency and previous experience in politics, see [Sudulich et al., 2019](#)) have been used to explain why actors use a particular representation principle. Consequently, this is a reason why it is a worthy pursuit to examine this link further, especially in regard to [Schwartz's \(1992\)](#) value dimensions.

The impact of professional and social roles on decision-making and actions is prominent in the social sciences (for example, [Eagly and Wood, 1991](#); [Aronson et al., 2005](#); [Cantir and Kaarbo, 2012](#); [Van Zalk et al., 2017](#); [Schneider and Bos, 2019](#)). Since politicians act differently than other actors when making decisions in natural resource management settings ([Nilsson, 2018](#)), it is reasonable to explore how this role, along with personal values, affects decision-making in natural resource management in relation to the representation principles. Treading this path, we summarize the arguments and present an analytical framework below, completed with the control variables of gender, education and age ([Figure 1](#)).

To sum up, the dependent variable in this study is to follow the party or trustee principle when making decisions in natural resource management. The independent variables personal values and the mandate of the decision-makers, are tested together with gender, level of education and age to control for rivaling theories and, thereby, to strengthen the internal validity of the study.

2. Methods

2.1. The case

To fulfil the aim of the study, decision-making among participants in Swedish wildlife conservation committees (WCCs) are examined. The

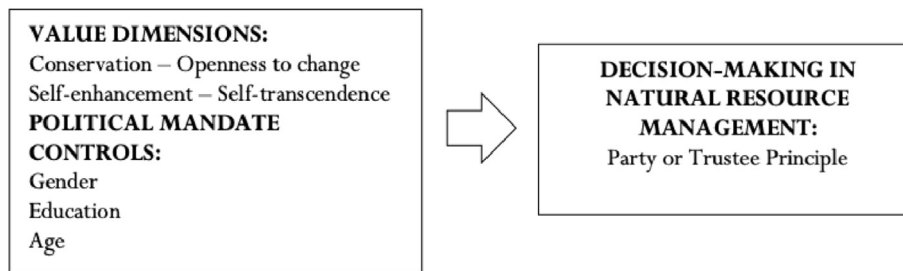


Fig. 1. Decision-making in natural resource management and its explanatory variables.

WCCs represent regional collaborative decision-making arenas initiated by the state in 2010, to improve the low legitimacy of Swedish wildlife policies in general and large carnivore policy in particular (Lundmark and Matti, 2015). The WCCs involve representatives from political parties and relevant interest organizations, and decide on guidelines for hunting and wildlife management. They also submit proposals for minimum levels of bear and lynx (and recently, wolf, for some counties) rejuvenation, as well as comment on management plans (Government Bill, 2012/13:191; SOU, 2012:22).

2.2. Data collection

Data were collected through a survey distributed to all permanent members of the 21 Swedish WCCs. Previous research regarding the impact of values has leaned heavily on a survey-method approach (see e.g. Lindemann and Verksalo, 2005; Steg et al., 2012; van der Werff and Steg, 2016; van Deth and Scarbrough, 1995). The respondents from the WCC of Gotland were later excluded due to an absence of large carnivores in that region (the existence of large carnivores was crucial for the survey questions and analysis of them). This resulted in a total of 291 useful responses and a response rate of about 56 percent. The year of birth among the respondents ranged from 1932 to 1983, with a majority being born in 1954 or earlier. Respondents were 35.4 percent women, and 64.6 percent men. A majority of the respondents, about 40.3 percent, had a bachelor degree or higher. No ethical approvals were required for the

study but respondents were promised anonymity. The data collected from the survey is found in the supplementary material file “VFD data”.

2.3. Measures

To measure Schwartz’s universal values, we used 20 value items (suggested by Matti, 2009) with the addition of a measurement for hedonism (suggested by Steg et al., 2012). The respondents were provided a list of values, including brief descriptions, and were asked how important each value item was to them as a guiding principle in life (Table 1). The scale used to measure the importance of each item varied from -1 (indicating contrary to one’s values) to 7 (of utmost importance).

To categorize the independent variable of the role of the representative, the actors were coded as follows: politicians were coded 1 and those not having such a mandate were coded 0. In our case of the WCCs, all politicians are appointed from the regional parliaments and the other actors mainly consist of interest organization representatives (for more on actor composition in the WCCs, see case description above). The independent control variable gender was coded 0 for women and 1 for men. Age was calculated by subtracting year of birth from the time when the survey data was collected (2013). Education was coded with four levels of highest finished degree, in which 1 indicates junior high school and 4 indicates a doctoral degree.

To measure the dependent variable, we draw on Nilsson (2015). The members of the WCCs are appointed to represent their respective political parties or interest organizations (see Government Bill, 2012/13:191). Decision-making was examined by analysing how the WCC members acted, i.e. what standpoint they pursued in situations of conflict between their own standpoint and that of their respective organizations when deciding on a conflicting issue, rejuvenation of large carnivore populations. In general, large carnivore policy issues, such as rejuvenation of wolf and lynx populations, have been the contested topics (see Government Bill, 2012/13:191; Swedish Department of Environment, 2009). A survey question was asked to measure the degree to which the respondents follow the party/organizational standpoint when it differs from their own view when deciding on the rejuvenation of large carnivore populations. The response scale ranged from 1 (“I follow the view of the organization I represent, even when it is contrary to my personal view”) to 6 (“I follow my personal view, even when it is contrary to the view of the organization I represent”).

2.4. Data analysis

The respondents’ responses regarding the importance of Schwartz’s universal values and the role of the representative were used as independent variables, along with the control variables of age, gender and education. Since the value items are proxies for the ten universal values, which in turn are connected to the two bi-polar dimensions mentioned in the introduction, reliability tests were performed to ensure the items related to each other responded to in the same way. The items and values were grouped and indexed according to their positions on the two dimensions, which resulted in four value orientations that serve as

Table 1. Items used to measure Schwartz’s universal values.

Value	Item	Brief description
Conformity	Self-discipline	Restrain yourself, resist temptation
	Obedience	Fulfil your duties
Tradition	Respect for tradition	Maintain old customs
Benevolence	Helpful	Work for the well-being of others
	Loyalty	Loyal to friends and people like you
Universalism	Broad-minded	Tolerance of differing views and ideas
	Protect environment	Protect and maintain biodiversity
	Social justice	Fight injustice, care for the weak in society
Self-Direction	Freedom	Freedom of thought and action
	Independence	Take care of yourself, self-reliance
	Creativity	Being unique and imaginative
	Curiosity	Being interested, explorative
Stimulation	A varied life	A life full of challenges and changes
Hedonism	Enjoy life	Enjoy food, pleasures, sex
Achievement	Influential	Influence people and events
	Successful	Achieve your goals, succeed
Power	Wealth	Being materially well off, money
	Social power	Control over others, domination
	Authority	The right to lead others
Security	Social order	A stable society
	Family security	Security for those dear to you

independent variables: *conservation* (security, conformity, tradition), *openness to change* (self-direction, hedonism, stimulation), *self-enhancement* (achievement, power) and *self-transcendence* (universalism, benevolence).

First, Cronbach's alpha was calculated for each of the four orientations. Three of the four orientations (*conservation*, $\alpha = 0.628$; *openness to change*, $\alpha = 0.645$; *self-enhancement*, $\alpha = 0.699$) scored between 0.60 and 0.70, which is the lower limit of acceptability (see Hair et al., 1998). *Self-transcendence* ($\alpha = 0.592$) scored just below these critical values, indicating reliability problems. To explore these issues further, a factor analysis was performed for a fixed number of four factors (one for each orientation).

The Bartlett's test of sphericity was significant at $p < 0.001$ (Chi-square = 919.7, $df = 210$), and the KMO test (Dziuban and Shirkey, 1974) evaluating sampling adequacy was at an acceptable rate of 0.721 for the collective set. In general, the items showed correlations with the extracted factors, as presented in the theory section. However, when scrutinizing the pattern matrix, two items turned out to be problematic. The loyalty item related to benevolence correlated highly ($r = 0.673$) with the items in the conservation orientation, and not at all with the items related to the self-transcendence orientation ($r = 0.157$). Further, the protect-the-environment item, which is also related to universalism, showed low correlation with the extracted factor for this orientation ($r = 0.239$), and no correlation with any other orientation. A new Cronbach's alpha was calculated for self-transcendence, now excluding these two items, and the new score was within the lower limit of acceptability ($\alpha = 0.610$). The rest of the independent variables and the dependent variable were used as described in the methods section earlier.

We used Ordinary Least Squares (OLS) regression to test whether the independent variables affect the decision-making on rejuvenation of large carnivore populations, which is common practice when trying to predict a continuous dependent variable with both binary and continuous independent variables (Hair et al., 1998). The regression equation used was

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + e,$$

in which Y - denotes decision-making on large carnivore population rejuvenation, X_1 conservation, X_2 openness to change, X_3 self-enhancement, X_4 self-transcendence, X_5 role of representative, X_6 gender, X_7 education, X_8 age, β_0 intercept, and e error. The independent value dimension variables were measured on a scale from -1 to 7. A good model fit for OLS regression is indicated when the F value is significant in

regards to the squared R^2 value (Hair et al., 1998) and, to this end, these statistics were calculated.

3. Results

Table 2 presents the regression model. The F value of the model was 4.571 ($p < 0.001$) indicating a good fit for the model, and this model had an R^2 value 0.19, indicating that it accounted for about 19 percent of the variance in the dependent variable.

Next, we examine the explanatory power of each variable (Table 2). Three independent variables had a significant impact on predicting the dependent variable: the value-dimension of self-enhancement, the role of the representative (i.e. being a politician or not) and age. This means that the more self-enhanced the actor is, the more likely that actor is to follow their own preference rather than the party's or organizations' standpoint when they make their decisions. The same can be said in regards to age, where the older representatives significantly more followed the trustee principle than the younger representatives. Last, politicians also significantly followed the trustee principle to a higher extent than the interest organizational representatives not having such a mandate.

4. Discussion

Scrutinizing the results, we see that personal values do matter for representational style when deciding on the large carnivore issues in the Swedish WCCs. The particular value dimension of self-enhancement significantly influences a representational style more toward following the trustee principle.

Why are this study's respondents who put more weight on self-enhancement than on self-transcendence more likely to follow their own preferences? The intuitive answer is that individuals with these personal values like to exert power and reach success, and do this in relation to their own view of what they find the right thing to do. This is not remarkable at first sight, but given the Swedish context it becomes more interesting. The ability to advance and improve one's political position in Sweden is linked to being a partisan player. According to earlier research, it is more likely to earn future political position in Sweden if the representative is loyal to his or her organization and follows the party principle (see e.g. Esaiasson and Holmberg, 1996; Skoog, 2011).

Those who want to exert and achieve power as political representatives in Sweden need to be loyal to the party, at least in the long run. However, in the context of the WCCs, this is not the case, in regards to the results on self-enhancement personal values and that politicians are more prone to the trustee principle than the organization interest

Table 2. Model coefficients.

	B	SE	Beta	t	VIF
Conservation	-0.109	0.140	-0.067	-0.780	1.437
Openness to change	0.018	0.148	0.010	0.120	1.368
Self-enhancement	0.281	0.126	0.179	2.237*	1.239
Self-transcendence	0.081	0.135	0.052	0.600	1.444
Representation	0.885	0.255	0.267	3.470***	1.136
Gender	0.171	0.259	0.052	0.659	1.194
Education	-0.168	0.175	-0.075	-0.960	1.172
Age	0.032	0.012	0.204	2.621**	1.163
Constant	0.888	1.208		0.735	

SE = Standard Error.

B = Unstandardized value.

Beta = Standardized value.

t = t-value.

VIF = Variance inflation factor.

* = Statistically significant at 0.05 level.

** = Statistically significant at 0.01 level.

*** = Statistically significant at 0.001 level.

representatives. The organizational representatives in the WCCs are even less likely than their politician counterparts to deviate from the standpoint of their respective organizations when deciding on wildlife policy issues.

These results highlight the importance of the context in which the decisions are made. For the interest organization representatives, this is the arena to make decisions which directly influence the natural resource management. Their other usual venue is lobbying. For the politicians, on the other hand, they are also represented in the regional parliaments, where they make a majority of their decisions. It is thus reasonable to think that while in the regional parliament, the party principle can be their dominant representational style, but in the WCCs a shift toward the trustee principle occurs. Future research should delve deeper into this result and explore whether there is a shift of representational style between the contexts and how this relates to the personal values of the politicians.

It is remarkable that the non-politician actors (the interest organization representatives) rely more on the party principle and decide more aligned with the will of the organizations they represent, compared to the politicians. This indicates a stronger connection between the interest organizations and their representatives, and an understanding of the representatives that their roles are to push the will of those whom they represent, regardless if they think it is wrong or right. Again, in relation to the strong party principle in general in Sweden, it is remarkable that the interest organization representatives here act as the typical politician and the politicians do not (cf. [Esaïasson and Holmberg, 1996](#); [Skoog, 2011](#); [Nilsson, 2015](#)).

The result that older representatives rely significantly more on the trustee principle compared to younger representatives is also intuitive. Most participants in these settings are older and both experience and less risk of losing career opportunities can be explanations to this effect. The younger representatives, again in relation to the Swedish context mentioned above, need to be more responsive to the will of those they represent if they want to have a career in these parties and organizations. Older representatives are often more established in their roles or at the end of their careers, and simply do not risk as much if they disobey the will of their parties and organizations.

5. Conclusions

In light of the results and discussion above, we reach a couple of conclusions. First, both personal values and the role of the representatives matter for which representational principle will guide the decision-making. Personal values have earlier proven to be a significant factor for environment-related issues ([Steg and Vlek, 2009](#); [Sagiv et al., 2011](#); [Jagers et al., 2016](#)) and the results of this article further confirm this relevance. The same is true for the effect of professional and social roles, which here also was a significant predictor of the decision-making in the WCCs. The role of context, especially in relation to the politicians, cannot be underplayed. In these collaborative settings, the politicians deviate from how they make decisions in more traditional settings in Sweden (such as parliaments) and is an important reminder of the complexity of decision-making in environmental policy issues and arenas.

5.1. Limitations, future research and recommendations

There are a few limitations of this study. One is the focus on the issue of rejuvenation of large carnivore populations. Although being a crucial decision-making issue to highlight the conflicts surrounding large carnivore management in the WCCs, future research should widen the scope and also study other conflicting issues in this area. By doing so, insights and implications with greater external validity can be reached for natural resource management decision-making. Further, since this is a Swedish case, other cases in other countries should be explored to see how personal values and role affect the choice of decision-making principle. As stated by for example [Esaïasson and Holmberg \(1996\)](#) and

[Nilsson \(2015\)](#), Swedes seemingly have a strong tendency toward the party principle and it would be interesting to see how value dimensions matter in contexts not as associated with this representational style.

Another limitation is the lack of deeper knowledge in this study regarding the conflicting coalitions deciding on these issues in the WCCs. We know from previous studies that the conflicts are due to differences between rival coalitions in how they view large carnivores and how they should be managed (see [Matti and Sandström, 2011](#); [Matti and Sandström, 2013](#); [Eriksson, 2017](#)). However, exactly which actors constitute these coalitions and how they view both themselves and their rivals are understudied and further research on this matter may highlight why the interest organizations relied more on the party principle than the politicians, as well as why actors using this representational style have more personal values connected to the self-enhancement dimension.

We have two main recommendations and insights to provide based on the study conducted in this article. First, we recommend policy makers to be aware of the relationship between personal values and how decisions are made in natural resource management. The more self-enhancement values among the representatives, the less they will be vessels for the party or organization they represent. Collaborative settings are often designed for learning and promoting change among the involved actors. If policy makers want their representatives in these settings to be less rigid in their decision-making and not only pushing party or organizational viewpoints, they need to know that personal values matter. In the long run, such values will have an impact on and facilitate which decisions are made.

Second, in contexts similar to natural resource management in the Swedish WCCs, we can expect interest organization representatives to decide more like politicians, than the politicians themselves. Context matters when trying to understand political phenomena and the pattern shown by the politicians here really highlights this claim, where party principle is weaker than in other decision situations. This is important to know for policy makers designing collaborative settings similar to the Swedish WCCs. Politicians will in these settings behave differently than they do in more traditional decision-making settings.

Declarations

Author contribution statement

Jens Nilsson: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Carina Lundmark: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

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