

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/272089767>

# Feelings for the Suffering of Others and the Environment: Compassion Fosters Proenvironmental Tendencies

Article in *Environment and Behavior* · March 2015

DOI: 10.1177/0013916515574549

CITATIONS

33

READS

1,127

3 authors:



**Stefan Pfattheicher**  
Aarhus University

40 PUBLICATIONS 421 CITATIONS

SEE PROFILE



**Claudia Sassenrath**  
Ulm University

18 PUBLICATIONS 149 CITATIONS

SEE PROFILE



**Simon Schindler**  
Universität Kassel

41 PUBLICATIONS 278 CITATIONS

SEE PROFILE

Running Head: COMPASSION AND PROENVIRONMENTAL TENDENCIES

Feelings for the suffering of others and the environment:

Compassion fosters proenvironmental tendencies

Stefan Pfattheicher<sup>1</sup>, Claudia Sassenrath<sup>1,2</sup>, & Simon Schindler<sup>3</sup>

<sup>1</sup>Ulm University, Germany, <sup>2</sup> Knowledge Media Research Center, Tübingen, Germany,

<sup>3</sup> Kassel University, Germany

Address correspondence to

Stefan Pfattheicher  
Universität Ulm  
Abteilung Sozialpsychologie  
89069 Ulm, Germany  
stefan.pfattheicher@uni-ulm.de  
+49-(0)731/50 31161

## ABSTRACT

Recent research has shown that compassionate feelings for the suffering environment promote conservation of nature. We extend this notion and relate compassion for suffering humans to proenvironmental tendencies. The proposed relation should hold true as compassion elicits moral actions and judgments across different moral domains which should also be applicable to the environment. Therefore, we expect compassion for other humans to relate positively to proenvironmental tendencies. Two studies were conducted to test this assumption. Study 1 included three independent samples (final N = 2,096) and several measures of proenvironmental tendencies. Results revealed that compassion was indeed positively related to proenvironmental values, proenvironmental intentions and reported donations to nature or environmental organizations. In Study 2 we experimentally tested and found a causal path between compassion for humans and proenvironmental intentions. Implications for climate change and protection of nature are discussed.

Word count: 139

Keywords: compassion; conservation; environment; environmental concern; morality; proenvironmental tendencies

## INTRODUCTION

In recent years, *other-oriented* tendencies have been shown to be an important factor for proenvironmental behavior (e.g., Berenguer, 2007, 2010; Hopper & Nielsen, 1991; Schultz, 2001, 2002; Tam, 2013). That is to say, along with other basic motivations (i.e., self-interest and justice concerns; e.g., Griskevicius, Tybur, & Den Bergh, 2010; Parris, Hegtvedt, Watson, & Johnson, 2014), other-oriented tendencies have been considered to foster proenvironmental behavior in a conclusive way. The present work investigates one important other-oriented tendency, that is, compassion for other individuals, with regard to proenvironmental tendencies. It has already been shown that specific compassion *for the environment* relates to proenvironmental intentions (e.g., Berenguer, 2007, 2010; Tam, 2013). We extend this notion and relate compassion for the suffering of other individuals to proenvironmental tendencies. Indeed, Tam (2013) recently claimed that the relation between compassion for humans and environmental behavior needs investigation to acquire a better theoretical understanding of this relation. In this sense, the present research addresses a gap in this field in that we study whether compassion for other individuals influence proenvironmental tendencies.

Specifically, in the present work we argue that compassion for other individuals should lead to proenvironmental tendencies as compassion guides moral actions and judgments across different moral domains which should be also applicable to the environment (Goetz et al., 2010; Haidt, 2003; McCullough, Kilpatrick, Emmons, & Larson, 2001). Therefore, we expect compassion for other individuals to relate positively to proenvironmental tendencies. The rationale for this assumption is outlined in detail below.

## COMPASSION AND CONCERN FOR THE SUFFERING OF OTHERS

We define compassion in line with Lazarus (1991) who emphasized that the core theme of compassion is being moved by another's suffering (see also Haidt, 2003). Accordingly, the

essence of compassion is feelings that are elicited in response to suffering others (for a compelling review on compassion, see Goetz, Keltner, & Simon-Thomas, 2010).

It is noteworthy that other terms that have been used in this context are “empathic concern” or “empathy” in general, instead of compassion. In fact, empathic concern is often used interchangeably with compassion (cf. Batson, 2009; Goetz et al., 2010; Singer & Klimeki, 2014). Basically, empathy can be considered to be a more general construct including perspective taking, emotional sharing, and a concern for suffering others (i.e., compassion; Decety & Cowell, 2014). Thus, compassion constitutes one dimension of empathy, while empathy consists of additional dimensions (Batson, 2009; Singer & Klimeki, 2014). In the present work, we used the term compassion rather than the general term empathy in order to make explicit that the present work focuses on feelings for the suffering of others.

As a consequence of compassion, a “prosocial action tendency” is elicited (Haidt, 2003) especially when the suffering other deserves help and one has the resources to help (Goetz et al., 2010). Hence, compassionate individuals follow the ultimate moral goal of preventing and relieving the suffering of others as well as improving others’ welfare. In this regard, compassion has been shown to be associated with a concern for humanity (Goetz et al., 2010; Sprecher & Fehr, 2005). This applies to, for instance, helping vulnerable others, volunteerism, and donations to a common group project (Batson, O’Quin, Fultz, Vanderplas, Isen, 1983; Eisenberg, McCreath, & Ahn, 1988; Eisenberg et al., 1989; Omoto, Malsch, & Barraza, 2009). Compassion should not be restricted to the suffering of humans but should also apply to the suffering of other species (e.g., Mehrabian & Epstein, 1972; Tam, 2013). That is to say, compassion elicits moral judgments and actions across different moral domains (Goetz et al., 2010; Haidt, 2003; McCullough et al., 2001). Consequently, compassion is included in the spectrum of basic moral emotions (Haidt, 2003).

Regarding proenvironmental tendencies, a concern for the suffering of nature (e.g., a suffering tree) strengthened environmental attitudes and the moral obligation to help nature.

(Berenguer, 2007). Recently, Tam (2013) proposed that empathy with suffering nature is one fundamental factor in predicting proenvironmental behavior. Schultz (2001, see also Stern, Dietz, & Kalof, 1993) suggested that biospheric environmental concerns, that is, individuals' concern for plants, animals, marine life, and birds predicts proenvironmental behavior. That is to say, a concern for the environment (i.e., the other-oriented tendencies of environmental concern, empathy and feelings for nature) promotes engagement in proenvironmental tendencies (Karpiak & Baril, 2008; Gosling & Williams, 2010; Mayer & McPherson Frantz, 2004; Milfont & Sibley, 2012; Raymond, Brown, & Robinson, 2011; Schultz, 2001, 2002; Stern et al., 1993; Tam, 2013).

Building on the notion that compassion elicits moral judgments and actions across different moral domains (Goetz et al., 2010; Haidt, 2003; McCullough et al., 2001), we assume that compassion elicits the morality-driven motivation to prevent and to relieve suffering and to improve others' welfare which should also include nature and the environment. As a consequence, we expect compassion for humans to relate positively to proenvironmental tendencies. These assumptions are tested in two empirical studies as reported below.

## STUDY 1

In Study 1 we hypothesized that *dispositional* compassion for humans is positively related to proenvironmental tendencies. In this study, different proenvironmental tendencies were measured which was done in three independent samples. Specifically, we assessed: (a) individuals' dispositional compassionate tendencies for other humans (in all samples), (b) proenvironmental values (in Sample 1), (c) proenvironmental intentions (in Sample 2), and (d) whether participants report having donated money to nature or environmental organizations (in Sample 3).

## Method

*Participants.* Study 1 involved two samples of students from a German university (Sample 1:  $N = 101$ ;  $M_{\text{age}} = 20.6$ ; 85.1% females; Sample 2:  $N = 60$ ;  $M_{\text{age}} = 22.9$ ; 56.7% females). Sample 3

consists of a representative study (the LISS Panel) taken in the Netherlands ( $N = 1.935$ ;  $M_{\text{age}} = 51.7$ ; 53.4% females). The participants in Sample 1 completed the measures at a computer laboratory at the university; Sample 2 completed a paper/pencil study; Sample 3 completed an online survey. Unless indicated otherwise, all scale endpoints of self-report items were labelled (1) not at all true and (7) completely true.

*Compassion.* We measured dispositional compassion using an emotional empathy scale (see also Saslow et al., 2013, for this approach). In all samples, an adapted version of the emotional empathy scale developed by Mehrabian and Epstein (1972) was used to assess compassion (for validation of the scale and items see Keller & Pfattheicher, 2013). A sample item of the nine-item scale reads: “It makes me sad to see a lonely stranger in a group”; ( $M_{\text{Sample1}} = 5.36$ ,  $SD_{\text{Sample1}} = 0.85$ ,  $\alpha = .81$ ;  $M_{\text{Sample2}} = 4.98$ ,  $SD_{\text{Sample2}} = 0.76$ ,  $\alpha = .75$ ;  $M_{\text{Sample3}} = 4.39$ ,  $SD_{\text{Sample3}} = 1.10$ ,  $\alpha = .87$ ).

*Proenvironmental values.* In Sample 1, we assessed basic individual values as proposed by Schwartz et al. (2012). The value that is particularly relevant here is “universalism–nature” which reflects individuals’ concern for preserving the environment ( $M = 3.32$ ,  $SD = 1.23$ ,  $\alpha = .91$ ). A sample item of the three-item scale reads: “Caring for nature is very important to him/her” (results involving the other values are available on request).

*Proenvironmental intentions.* In Sample 2, proenvironmental intentions were assessed using an adapted version of the environmental behavior scale (Schultz & Zelezny, 1998; Schultz, Zelezny, & Dalrymple, 2000). The original scale relates to behavior in the past (e.g., “I often looked for ways to reuse things”). We rephrased the items slightly in order to obtain a measure for future proenvironmental behavior ( $M = 5.24$ ,  $SD = 0.98$ ,  $\alpha = .83$ ), thereby allowing the measurement of proenvironmental intentions in experiments (as in Study 2). A sample item of the eight-item scale reads: “In future, I will look for ways to reuse things”.

*Proenvironmental donations.* In Sample 3, the representative sample, participants were asked to indicate whether they “donate money to one or more nature or environmental organizations”. They could answer this question by stating yes (42.2%) or no (57.8%). Due to the panel character of the LISS study, proenvironmental donations were assessed in October 2009; compassion in this sample was assessed in February 2011.<sup>1</sup>

*Social desirability.* In Sample 3, social desirability was assessed via the Crowne-Marlowe Scale (1960;  $\alpha = .52$ ) in May 2011. This measure was included in our analyses to rule out the possibility that the relation between compassion and proenvironmental tendencies is merely a result of socially desirable responding (cf. Batson, 2011). This is particularly important given that proenvironmental behavior was self-reported. A sample item of the ten-item scale reads: “I have never intensely disliked anyone”. The items could be answered by stating yes (1) or no (0). The sum score ( $min = 0, max = 10$ ) had a mean of 5.91 ( $SD = 1.96$ ).

### Results and Discussion

Compassion was shown to be significantly positively correlated with proenvironmental values,  $r(99) = .28, p < .01$ , and proenvironmental intentions,  $r(58) = .27, p < .05$ . Compassion could also significantly predict proenvironmental donations in a logistic regression ( $B = 0.17, SE = .04, p < .001$ , Nagelkerke’s  $R^2 = .011$ ), that is, the stronger a participant’s dispositional compassion the higher the chance that they would donate to one or more nature or environmental organizations. Including the factor of social desirability in this analysis did not change the coefficient of compassion ( $B = 0.17, SE = .04, p < .001$ ). Social desirability was not significantly related to proenvironmental donations ( $B = .15, SE = .24, p = .52$ ).

These results consistently support our hypothesis that compassion for the suffering of others positively relates to proenvironmental tendencies – beyond socially desirable responding. Regarding the correlations, we found a medium effect size (Cohen, 1988) which corresponds to the average effect size in social psychology estimated across 100 years (Richard et al., 2003).

As a next step we tested the causal relation between compassion and proenvironmental tendencies. Therefore, in Study 2 compassion was manipulated and proenvironmental tendencies were subsequently assessed. Before we report this study we introduce and validate an easily applicable manipulation to induce compassion, which was then applied in Study 2.

## VALIDATION STUDY

### Method

*Participants and procedure.* Sixty-eight students from a German university ( $M_{age} = 24.92$ ,  $SD = 5.55$ , 71.1% females) participated in an online study.

*Manipulation of compassion.* Our manipulation of compassion was based on two works: Batson et al. (1997) and Oveis, Horberg, and Keltner (2010). Oveis and colleagues (2010; see also Oveis, Cohen, Gruber, Shiota, Haidt, & Keltner, 2009) induced compassion using fifteen emotional pictures displaying suffering individuals. We used two of these pictures, a homeless person leaning against the wall of a house and a diseased child, ensuring that none of the pictures included any reference to the environment and nature. In our validation study, all participants were presented each picture for ten seconds. Participants were randomly assigned to either the high-compassion condition ( $n = 34$ ) or the low-compassion condition ( $n = 34$ ). In the high-compassion conditions, before viewing the pictures participants read compassion promoting instructions for how they should view the pictures (cf. Batson et al., 1997, Study 3; Batson, Chang, Orr, & Rowland, 2002). Participants read “It is important for the study that you imagine how the pictured persons feel. Try to feel what the persons are currently going through and how they feel. You can let yourself be guided by your feelings.” In the low-compassion condition, participants read “It is important for the study that you stay objective when viewing the pictures. Try not to let yourself be guided by your feelings. That is, try to stay neutral and detached.”

*Dependent variables.* To check whether the introduced manipulation actually produces a difference in state compassion between the two conditions, we measured state compassion directly

after the presentation of the two pictures. Participants rated each item on a seven-point Likert scale to indicate how they currently felt. We used the five items for measuring compassionate states taken from Batson and colleagues (Batson, 1987, 1991; Batson et al., 1995): sympathetic, tender, soft-hearted, compassionate, and moved. These items ( $\alpha = .91$ ) were averaged to compose a compassion index. In order to present the compassion items in a meaningful context and to reduce demand effects, we embedded the compassion items into the ten-item short form of the Positive ( $\alpha = .56$ ) and Negative ( $\alpha = .62$ ) Affect Schedule (PANAS; Mackinnon et al., 1999). Given that the item “moved” of the negative subscale of the PANAS is already part of the compassion index, it was not considered in the negative subscale of the PANAS.

### Results and Discussion

Analysis revealed a significant difference ( $t(66) = 2.79, p < .01$ ; Cohen's  $d = .67$ ) in state compassion between the high-compassion condition ( $M = 4.76, SD = 1.08$ ) and the low-compassion condition ( $M = 3.89, SD = 1.46$ ). There was no significant difference ( $t(66) = 1.66, p = .11$ ) in negative affect (high-compassion condition,  $M = 2.69, SD = 1.05$ ; low-compassion condition,  $M = 2.29, SD = 0.94$ ; Cohen's  $d = .40$ ) and positive affect ( $t(66) = 1.16, p = .25$ ; high-compassion condition,  $M = 2.61, SD = 0.72$ ; low-compassion condition,  $M = 2.84, SD = 0.91$ ; Cohen's  $d = .28$ ).

The results indicate a successful manipulation of compassion. The aim of the study was to develop an easily applicable and valid method to manipulate compassion. The findings of the validation study speak to the applicability of the manipulation. We applied this manipulation in the study reported below to test the hypothesis that *state* compassion leads to proenvironmental tendencies.

## STUDY 2

### Method

*Participants and procedure.* Ninety-four students from a German university ( $M_{age} = 22.97$ ,  $SD = 2.58$ , 46.8% females) participated in this paper-pencil study.

*Manipulation of compassion.* We applied the manipulation of compassion as outlined in the validation study above, resulting in a high-compassion condition and a low-compassion condition. Participants were randomly assigned to either the high-compassion condition ( $n = 47$ ) or the low-compassion condition ( $n = 47$ ). Instead of presenting each picture for precisely ten seconds as in our (online) validation study, we asked participants to look at each picture for approximately ten seconds.

Given the findings of the Validation Study, which suggest that our approach reflects a successful manipulation of compassion, we did not again include the compassion state items of the Validation Study in this study. The choice to not include the manipulation check items is in line with research showing that even simple measurements of psychological states (e.g., manipulation checks) can bias subsequence measurements (Kühnen, 2010).

*Dependent variable.* Subsequent to the manipulation of compassion, proenvironmental intentions ( $\alpha = .83$ ) were assessed as in Study 1.

### Results and Discussion

Analysis revealed a significant difference between the two conditions,  $t(92) = 2.70$ ,  $p < .01$  (Cohen's  $d = .55$ ). Participants in the high-compassion condition reported more proenvironmental intentions ( $M = 5.15$ ,  $SD = 0.90$ ) compared with those in the low-compassion condition ( $M = 4.62$ ,  $SD = 1.01$ ). Hence, in line with our hypothesis that compassion promotes proenvironmental tendencies, the present results extend the findings of Study 1 by establishing a causal relation between compassion and proenvironmental tendencies.

## GENERAL DISCUSSION

The present work has investigated one important *other-oriented* tendency, namely compassion for other humans, with regard to proenvironmental tendencies. Specifically, in two studies we documented that compassion is positively related to proenvironmental tendencies. Most importantly, we could establish a *causal* path between compassion and proenvironmental tendencies indicating that compassion for other individuals indeed promotes proenvironmental tendencies. These findings take into consideration a recent claim by Tam (2013) that the relation between compassion for humans and environmental tendencies need investigation.

Overall, the present research is in line with approaches highlighting other-oriented tendencies as crucial factors fostering proenvironmental tendencies. For instance, Berenguer (2007; 2010) and Tam (2013) have proposed that a specific concern for the suffering of nature fosters proenvironmental tendencies. In the present work, we extend this notion and show that individuals report stronger proenvironmental tendencies in the high-compassion condition compared with the low-compassion condition. Accordingly, our work extends the conceptually close relation of a concern for nature and proenvironmental behavior.

Beyond these contributions to the field of other-oriented tendencies and proenvironmental behavior, several other points are noteworthy. First, we document the relation between compassion and proenvironmental tendencies in several independent samples thus acknowledging recent claims emphasizing replication in psychology (e.g., IJzerman, Brandt, & Van Wolferen, 2013; Makel, Plucker, & Hegarty, 2012). Second, we show the relation between compassion and proenvironmental tendencies across different measures of proenvironmental tendencies. Thus, it seems reasonable to assume that our conclusion of compassion being related to proenvironmental tendencies is not the result of a specific measure of proenvironmental tendencies. This speaks to the validity of the relation. Third, we document that compassion relates to proenvironmental

tendencies in a representative sample which was unaffected by socially desirable response tendencies. As such, the findings seem to hold for a general population and not only for students.

In critically reflecting on the current work, we want to acknowledge the fact that some of the findings rely on self-report by the participants and no real observed behavior. Self-report instruments only provide access to information about people's beliefs about themselves. Also, there is evidence that self-report instruments including affective response towards stimuli (such as dispositional compassion) do not align with momentary affective experiences (Feldman Barrett, 1997; Robinson & Clore, 2002). We could handle the issue of self-reported compassion in Study 1 by inducing compassion in Study 2. Yet, proenvironmental intentions are still self-reported and it is unclear whether participants correctly forecast their intentions and act in a more proenvironmental way after compassion for humans is induced (cf. Wilson & Gilbert, 2003). Nonetheless, intentions have been shown to be an important basis for the emergence of real behavior (cf. Ajzen, 1985). Additionally, in Study 1, Sample 3, participants report whether they donate money to one or more nature or environmental organization. In sum, while future research can extend the present research by showing the link between compassion for humans and proenvironmental behavior, the present contribution represents a meaningful foundation in this regard.

We also want to address another issue. The duration for which participants viewed the pictures inducing compassion (or not) might have differed between the Validation Study and Study 2. Given that the Validation Study was an online study we were able to program the precise duration the two pictures were displayed on the screen (i.e., 10 seconds). The same pictures were used in Study 2 which was a paper/pencil study. Here, it was technically impossible to ensure that the pictures were displayed for exactly ten seconds. Therefore, we asked participants "to look at each picture for approximately ten seconds." Although there is no guarantee that participants followed the instructions, it seems likely that participants dealt with the pictures appropriately

because the study was conducted under controlled laboratory conditions (i.e., no external distraction) and both the high- and the low-compassion condition included a statement highlighting the importance of viewing the pictures as instructed (see instructions in the Method section of the Validation Study).

We have proposed that compassion includes a moral concern which should be applicable to nature and the environment. Beyond that, others processes are possible, which is in line with recent theorizing emphasizing a multiple process perspective (Bullock, Green, & Ha, 2010; Fiedler, Schott, & Meiser, 2011; Hayes, 2013). Thus, it seems reasonable to assume that *several* routes can lead to specific behavior. Hence, it could be possible that compassion, defined as a reaction to negative, baleful experiences others are undergoing, implies some sort of negativity bias also affecting proenvironmental tendencies (Keller & Pfattheicher, 2013). Specifically, if compassion implies the processing of the *negative* experiences of other entities then compassionate individuals might be more likely to consider the potential negative impact that their non-proenvironmental behavior might have on other entities. Hence, a heightened awareness of potentially negative developments for others might also contribute to the effect that compassion has on proenvironmental tendencies.

It is also plausible that “incidental affect” or “incidental emotion” can explain the results. Specifically, it has been shown that emotional states in one situation can carry over to another unrelated situation and impact judgment and decision-making (e.g., Bodenhausen, 1993). There is research on compassion showing carry-over effects of compassion from one situation to another unrelated one (Condon & DeSteno, 2011; Oveis et al., 2010). Therefore, it is well possible in the present case that compassion for humans might carry over to the unrelated situation of a concern for the environment which would result in strengthened proenvironmental tendencies.

We have argued that compassion elicits moral judgments and actions across different moral domains (Goetz et al., 2010; Haidt, 2003; McCullough, Kilpatrick, Emmons, & Larson,

2001). From this basis we assumed that compassion elicits the morality-driven motivation to prevent and to relieve suffering which should also be applicable to nature and the environment. Building on these considerations, it seems possible that political orientations could moderate the association between compassion for humans and proenvironmental tendencies. Research by Graham, Haidt, and Nosek (2009) on the basis of moral foundations theory (e.g., Haidt & Graham, 2007; Haidt & Joseph, 2007) shows that liberals endorse a stronger harm/care and fairness/reciprocity sensitivity compared to conservatives. Conservatives display three other sets of moral intuitions more strongly than liberals (i.e., ingroup/loyalty, authority/respect, and purity/sanctity). In this regard one could predict that the compassion-for-individuals and compassion-for-nature link is more pronounced in liberals given that these individuals are particularly harm sensitive (which corresponds to compassion for suffering humans) as well as caring sensitive (which corresponds to a concern for the environment and proenvironmental tendencies). Unfortunately, political orientations were not measured in our studies but it seems likely that the majority of participants possess liberal attitudes (many are students at a German university). Thus, the composition of the sample might have provided a basis for the association between compassion for humans and proenvironmental tendencies. Still, it is an interesting open question and future research can test political orientations as a moderator.

One could also discuss whether seeing nature *suffer* is a precondition for the relation of compassion and proenvironmental tendencies. Indeed, in Study 2, it was not explicitly stated that nature was suffering. Nonetheless, we found that compassion for other humans promotes proenvironmental intentions. On this basis one could assume that compassion leads to proenvironmental tendencies without the suffering of nature being explicitly salient. This is in line with the conceptualization of compassion as a basic moral emotion (Haidt, 2003) and congruent with the notion that compassion elicits moral actions and judgments across different moral domains – including proenvironmental tendencies as shown in the present studies.

In addition, it would be relevant for future research to investigate what subjects/objects can be the target of compassion. Research by Epley and colleagues (Epley, Akalis, Waytz, & Cacioppo, 2008; Epley, Waytz, & Cacioppo, 2007) has shown that individuals attribute human mental characteristics and emotions to non-human animals and gadgets (i.e., anthropomorphization). This notion is compatible with the findings by Tam (2013) and Berenguer (2007, 2010) which show that compassion applies to a wide spectrum of targets including compassion for suffering trees and animals. However, one may speculate that compassion is restricted to “living” targets (e.g., trees and animals) and not “non-living” targets such as the air or stones. In general, it is an open question whether compassion promotes proenvironmental tendencies as an ultimate goal, that is, whether compassionate individuals anthropomorphize nature and benefit nature as an agent (e.g., Mother Earth; Ahn, Kim, & Aggarwal, 2014; Tam, Lee, & Chao, 2013; Sacci, Riva, & Brambilla, 2013), or whether compassion promotes proenvironmental tendencies as an instrumental goal, that is, whether compassionate individuals benefit nature *in order to* benefit the lives of others.

As a final step, we want to discuss the applied value of the present contribution. That is, the present work is also relevant in terms of implications for climate change and protection of nature. So far, research has shown that specific compassion for the environment fosters proenvironmental tendencies (e.g., Berenguer, 2007, 2010; Tam, 2013). Building on the present work we provide evidence that feelings for the suffering of humans (i.e., compassion) also promotes proenvironmental tendencies. Thus, speakers (e.g., in front of the United Nations) or climate change campaigns (e.g., Greenpeace) that aim to mobilize people to protect nature may also include suffering humans in their demonstrations to elicit compassion which in turn may mobilize people to protect nature.

Furthermore, the majority of people are likely aware that damaging the environment is bad and acting proenvironmentally is desirable (Gifford, 2014). However, irrespective of the

*knowledge* people possess, proenvironmental tendencies can still be strengthened. The present contribution offers an *affective* perspective on how to strengthen proenvironmental tendencies. We suggest that individuals' proenvironmental motivation to protect nature can be increased by inducing the emotion of compassion. That is to say, we suggest increasing moral behavior in the domain of nature protection by activating the moral emotion of compassion.

To conclude, the present work has highlighted that other-oriented tendencies such as compassion for others effectively strengthen tendencies related to the conservation of nature. As such, the findings of the present work are important in the context of climate change because they suggest that general other-oriented tendencies such as compassion can successfully be used to promote proenvironmental behavior.

## FOOTNOTES

<sup>1</sup>Of note, the LISS study also included two items related to proenvironmental tendencies. We did not include the items of (a) whether individuals “performed voluntary work for an organization for environmental protection, peace, or animal rights” because it was not restricted to proenvironmental tendencies, (b) “I am involved with one or more nature or environment organizations.” because prevalence was fairly low and therefore variance was restricted (only 16.4% report that they are involved with one or more nature or environment organizations).

## REFERENCES

- Ahn, H. K., Kim, H. J., & Aggarwal, P. (2014). Helping fellow beings anthropomorphized social causes and the role of anticipatory guilt. *Psychological Science, 25*, 224-229.
- Ajzen, I. (1985). From intentions to action: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action control: From cognitions to behaviors* (pp. 11-39). New York: Springer.
- Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic? In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 65-122). New York: Academic Press.
- Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.
- Batson, C. D. (2009). These things called empathy. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 16-31). Cambridge, MA: MIT Press.
- Batson, C. D. (2011). *Altruism in humans*. New York: Oxford University Press.
- Batson, C. D., Batson, J. G., Todd, R. M., Brummett, B. H., Shaw, L. L., & Aldeguer, C. M. (1995). Empathy and the collective good: Caring for one of the others in a social dilemma. *Journal of Personality and Social Psychology, 68*, 619-631.
- Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin, 28*, 1656-1666.
- Batson, C. D., O'Quin, K., Fultz, J., Vanderplas, M., & Isen, A. M. (1983). Influence of self-reported distress and empathy on egoistic versus altruistic motivation to help. *Journal of Personality and Social Psychology, 45*, 706-718.
- Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., ... Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology, 72*, 105-118.

- Berenguer, J. (2007). The effect of empathy in proenvironmental attitudes and behaviors. *Environment and Behavior*, 39, 269-283.
- Berenguer, J. (2010). The effect of empathy in environmental moral reasoning. *Environment and Behavior*, 42, 110-134.
- Bodenhausen, G. V. (1993). Emotion, arousal and stereotypic judgment: A heuristic model of affect and stereotyping. In D. Mackie & D. Hamilton (Eds.), *Affect, cognition and stereotyping: Interactive processes in intergroup perception* (pp. 13-37). San Diego, CA: Academic Press.
- Bullock, J. G., Green, D. P., & Ha, S. E. (2010). Yes, but what's the mechanism? (Don't expect an easy answer). *Journal of Personality and Social Psychology*, 98, 550-558.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Mahwah, NJ: Erlbaum.
- Condon, P., & DeSteno, D. (2011). Compassion for one reduces punishment for another. *Journal of Experimental Social Psychology*, 47, 698-701.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354.
- Decety, J., & Cowell, J. M. (2014). Friends or foes: Is empathy necessary for moral behavior? *Perspectives on Psychological Science*, 9, 525-537.
- Eisenberg, N., Fabes, R. A., Miller, P. A., Fultz, J., Shell, R., Mathy, R. M., & Reno, R. R. (1989). Relation of sympathy and personal distress to prosocial behavior: A multimethod study. *Journal of Personality and Social Psychology*, 57, 55-66.
- Eisenberg, N., Fabes, R. A., Murphy, B., Karbon, M., Maszk, P., Smith, M., ... Suh, K. (1994). The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology*, 66, 776-797.
- Eisenberg, N., McCreath, H., & Ahn, R. (1988). Vicarious emotional responsiveness and prosocial behavior: Their interrelations in young children. *Personality and Social Psychology Bulletin*, 14, 298-311.

- Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T. (2008). Creating social connection through inferential reproduction loneliness and perceived agency in gadgets, gods, and greyhounds. *Psychological Science, 19*, 114-120.
- Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review, 114*, 864-886.
- Feldman Barrett, L. (1997). The relationships among momentary emotion experience, personality descriptions, and retrospective ratings of emotion. *Personality and Social Psychology Bulletin, 23*, 1100-1110.
- Fiedler, K., Schott, M., & Meiser, T. (2011). What mediation analysis can (not) do. *Journal of Experimental Social Psychology, 47*, 1231-1236.
- Gifford, R. (2014). Environmental psychology matters. *Annual Review of Psychology, 65*, 541-579.
- Goetz, J., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin, 136*, 351-374.
- Gosling, E., & Williams, K. J. (2010). Connectedness to nature, place attachment and conservation behaviour: Testing connectedness theory among farmers. *Journal of Environmental Psychology, 30*, 298-304.
- Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology, 96*, 1029-1046.
- Griskevicius, V., Tybur, J. M., & Den Bergh, B. V. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology, 98*, 392-404.
- Haidt, J. (2003). The moral emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of Affective Sciences* (pp. 852-870). Oxford: Oxford University Press.
- Haidt, J., & Graham, J. (2007). When morality opposes justice: Conservatives have moral intuitions that liberals may not recognize. *Social Justice Research, 20*, 98-116.

- Haidt, J., & Joseph, C. (2007). The moral mind: How 5 sets of innate intuitions guide the development of many culture-specific virtues, and perhaps even modules. In P. Carruthers, S. Laurence, & S. Stich (Eds.), *The Innate Mind* (Vol. 3, pp. 367-391). New York: Oxford.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: The Guilford Press.
- Hopper, J. R., & Nielsen, J. M. (1991). Recycling as altruistic behavior normative and behavioral strategies to expand participation in a community recycling program. *Environment and Behavior*, 23, 195-220.
- IJzerman, H., Brandt, M. J., & Van Wolferen, J. (2013). Rejoice! In replication. *European Journal of Personality*, 127, 128-129.
- Karpiak, C. P., & Baril, G. L. (2008). Moral reasoning and concern for the environment. *Journal of Environmental Psychology*, 28, 203-208.
- Keller, J., & Pfattheicher, S. (2013). The Compassion-hostility-paradox: The interplay of vigilant, prevention-focused self-regulation, compassion and hostility. *Personality and Social Psychology Bulletin*, 39, 1518-1529.
- Kühnen, U. (2010). Manipulation-checks as manipulation: Another look at the ease of retrieval heuristic. *Personality and Social Psychology Bulletin*, 36, 47-58.
- Lazarus, R. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the positive and negative affect schedule: Evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual Differences*, 27, 405-416.
- Makel, M. C., Plucker, J. A., & Hegarty, B. (2012). Replications in psychology research: How often do they really occur? *Perspectives on Psychological Science*, 7, 537-542.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24, 503-515.

- McCullough, M. E., Kilpatrick, S. D., Emmons, R. A., & Larson, D. B. (2001). Is gratitude a moral affect? *Psychological Bulletin*, *127*, 249-266.
- Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, *40*, 525-543.
- Milfont, T. L., & Sibley, C. G. (2012). The big five personality traits and environmental engagement: Associations at the individual and societal level. *Journal of Environmental Psychology*, *32*, 187-195.
- Oveis, C., Cohen, A. B., Gruber, J., Shiota, M. N., Haidt, J., & Keltner, D. (2009). Resting respiratory sinus arrhythmia is associated with tonic positive emotionality. *Emotion*, *9*, 265-270.
- Oveis, C., Horberg, E. J., & Keltner, D. (2010). Compassion, pride, and social intuitions of self-other similarity. *Journal of Personality and Social Psychology*, *98*, 618-630.
- Parris, C. L., Hegtvedt, K. A., Watson, L. A., & Johnson, C. (2014). Justice for all? Factors affecting perceptions of environmental and ecological injustice. *Social Justice Research*, *27*, 67-98.
- Raymond, C. M., Brown, G., & Robinson, G. M. (2011). The influence of place attachment, and moral and normative concerns on the conservation of native vegetation: A test of two behavioural models. *Journal of Environmental Psychology*, *31*, 323-335.
- Richard, F. D., Bond Jr, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology*, *7*, 331-363.
- Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, *128*, 934-960.
- Sacchi, S., Riva, P., & Brambilla, M. (2013). When mother earth rises up. *Social Psychology*, *44*, 271-277.
- Saslow, L. R., Willer, R., Feinberg, M., Piff, P. K., Clark, K., Keltner, D., & Saturn, S. R. (2013). My brother's keeper? Compassion predicts generosity more among less religious individuals. *Social Psychological and Personality Science*, *4*, 31-38.

- Schultz, P. W. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of Environmental Psychology, 21*, 327-339.
- Schultz, P. W. (2002). New environmental theories: Empathizing with nature: The effects of perspective taking on concern for environmental issues. *Journal of Social Issues, 56*, 391-406.
- Schultz, P. W., & Zelezny, L. C. (1998). Values and proenvironmental behavior: A five-country survey. *Journal of Cross-Cultural Psychology, 29*, 540-558.
- Schultz, P. W., Zelezny, L., & Dalrymple, N. J. (2000). A multinational perspective on the relation between Judeo-Christian religious beliefs and attitudes of environmental concern. *Environment and Behavior, 32*, 576-591.
- Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., ... Konty, M. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology, 103*, 663-688.
- Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology, R875-R878*.
- Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships, 22*, 629-651.
- Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and Behavior, 25*, 322-348.
- Tam, K. P. (2013). Dispositional empathy with nature. *Journal of Environmental Psychology, 35*, 92-104.
- Tam, K. P., Lee, S. L., & Chao, M. M. (2013). Saving Mr. Nature: Anthropomorphism enhances connectedness to and protectiveness toward nature. *Journal of Experimental Social Psychology, 49*, 514-521.
- Wilson, T. D., & Gilbert, D. T. (2003). Affective Forecasting. *Advances in Experimental Social Psychology, 35*, 345-411.