

Contents lists available at ScienceDirect

Ocean and Coastal Management



journal homepage: www.elsevier.com/locate/ocecoaman

Gender difference in biospheric values and opinions on nature management actions: The case of seal watching in Iceland

Cécile M. Chauvat^{a,b,*}, Sandra M. Granquist^{b,c}, Jessica Aquino^{b,d}

^a Northwest Iceland Nature Research Center, Sauðárkrókur, Iceland

^b The Icelandic Seal Center, Hvammstangi, Iceland

^c Marine and Freshwater Research Institute, Fornibúðir, Hafnarfjörður, Iceland

^d Hólar University, Sauðárkrókur, Iceland

ABSTRACT

Gender differences in biospheric value orientation and opinions on wildlife management have the potential to be used as a management tool in wildlife watching settings. In this research note, we build on a dataset from Chauvat et al. (2021) to investigate gender differences in biospheric value orientation and opinions on seal watching management of visitors at seal watching sites post hoc. Questionnaires (n = 597) were collected at three sites in Northwest Iceland. It was found that when genders were compared, women had stronger biospheric value orientations, were more aware of potential anthropogenic impacts on seals, believed to a higher extent that regulations were useful in terms of decreasing impact, and were more positive towards most management actions suggested in the questionnaire. We argue that further understanding of the gender dynamics regarding pro-environmental attitudes may be a valuable element in the context of sustainable wildlife tourism management.

1. Introduction

Visitors are important stakeholders in the management of coastal wildlife watching sites, as they have a great potential to affect conservation efforts (Beeharry et al., 2021; Pomeroy and Rivera-Guieb, 2006, p11). According to integrated coastal management principles, visitor opinions and behaviors should be considered in decision making when it comes to the management of the natural areas they visit (Lucrezi, 2021). One way to integrate visitors in management concretely is to take steps in understanding their perceptions of natural sites and their management, and this is especially important when it comes to fragile coastal ecosystems, which are very sensitive to tourism pressure (Burger et al., 2022). Better understanding of visitor perceptions and the demographic variables that influence them is needed to manage coastal and marine tourism sites in an effective and sustainable way (Munien et al., 2019). However, there is a lack of research regarding the possible influence visitors' gender has on perceptions of wildlife management actions. Considering gender is important to develop sustainable and effective practices (Lau, 2020), and while this is often explored when it comes to local communities, it has not often been discussed in the case of visitors. This study attempts to bring attention to gender differences regarding biospheric values, awareness of nature management needs, and opinions on management actions through a case study of seal watching in

https://doi.org/10.1016/j.ocecoaman.2023.106483

Received 22 April 2022; Received in revised form 14 December 2022; Accepted 4 January 2023 Available online 12 January 2023 0964-5691/© 2023 Elsevier Ltd. All rights reserved.

Northwest Iceland. Pressure from tourism can negatively affect sensitive seal populations in Iceland; some behaviors in visitors can diminish the disturbance, but management is lacking at seal watching sites to encourage these behaviors (Granquist and Sigurjonsdottir, 2014), Since gender may have an impact on visitors' behavior in nature, it should be considered in the improvement of educational materials and conservation programs (Burger et al., 2022), or in ensuring the social acceptability of management actions (Bennett, 2016). Therefore, we argue that further understanding of gender dynamics regarding pro-environmental attitudes are a valuable element in the context of wildlife tourism management strategies.

2. Literature review

Gender is a crucial concept which is difficult to define. For the purposes of this research, we will use a broad definition of gender as the "sociocultural constructions of masculinity and femininity that shape people's opportunities, experiences, social practices, and relations in day-to-day life" (Lau, 2020, p. 1590). Because it shapes experiences and social practices, links between gender and other concepts which have the potential to influence behavior, such as beliefs or values, should be investigated. According to Rokeach (1973, p.5) values are "enduring beliefs that a specific mode of conduct or end-state of existence is

Abbreviations: ISC, Icelandic Seal Center.

^{*} Corresponding author. Aðalgata 2, 550 Sauðárkrókur, Iceland. E-mail address: cecile@nnv.is (C.M. Chauvat).

personally or socially preferable to an opposite or converse mode of conduct or end-state of existence." They may indirectly but fundamentally determine factors such as environmental concern, attitudes, and beliefs which in turn shape pro-environmental behaviors (Dietz et al., 2005; Wang et al., 2021). Research has looked at variances between men and women regarding different values, such as the set of three value orientations described by Stern et al. (1993); biospheric, altruistic, and egoistic values. These value orientations attempt to describe how people make decisions: depending on what is good for the environment (biospheric value orientation), for others (altruistic value orientation), or themselves (egoistic value orientation) (Stern et al., 1993). Overall, research shows that women tend to have higher biospheric value orientation than men (Bjerke et al., 2007; Lee et al., 2013; Milfont and Sibley, 2016), as well as higher altruistic value orientation, empathy and compassion (Arnocky and Stroink, 2011; Lee et al., 2013; Milfont and Sibley, 2016). On the other hand, research on egoistic values is conflicted, and more recent studies are needed. Some studies find no difference in egoistic value orientation between genders (e.g. Lee et al., 2013). Others do, for example in the way that women tend to show less social dominance orientation (e.g. Milfont and Sibley, 2016).

Other sets of values have been defined to measure orientations specifically towards wildlife. Fulton et al. (1996), introduced the concept of the 'use' and 'protection' values for wildlife. This concept was taken further with the introduction of the 'wildlife domination' and 'wildlife mutualism' orientation by Manfredo et al. (2009). Those who have high wildlife domination value orientation are more likely to view wildlife as a resource for human use, while those who have high wildlife mutualism value orientation are more likely to view wildlife as deserving care and rights. In general, women have been found to have higher wildlife protection and mutualism orientation (Hermann et al., 2013; Milfont and Duckitt, 2004; Vaske et al., 2011), and men have higher wildlife use and domination orientation (Hermann et al., 2013; Oerke and Bogner, 2010). Therefore, women are more likely to be empathetic towards animals and see them as moral entities with equal value, while men are more likely to place humans above other animal species, and to value human dominance (Graça et al., 2018).

Further, some previous studies have indicated that women, in general, feel closer to wildlife than men and are more concerned about animal welfare (Dougherty et al., 2003; Graça et al., 2018). For example, women were found to feel more negative personal emotional and psychological impact from lethal wildlife control; there was also a stronger correlation between values, beliefs, attitudes, and these feelings (Dougherty et al., 2003). Therefore, the study argues that women may base their wildlife management opinions on their values to a higher extent compared to men. As a result, women are less likely to support hunting and lethal ways of controlling wildlife populations (Byrd et al., 2017; Loyd and Miller, 2010; van Eeden et al., 2020), even in cases where they are more afraid of wild animal encounters (Zinn and Pierce, 2002). This gender difference towards lethal methods is also found in U. S. wildlife professionals (Sanborn and Schmidt, 1995). Women in some studies have also been found to be more positive towards the reintroduction of extinct species (Hermann et al., 2013). Finally, a study on the opinions of wildlife professionals found that women were more likely to prioritize management through environmental education, to favor basing management on the values and concerns of the local community, to care about the welfare of individual animals in non-threatened populations, and to be against hunting wildlife for fur (Miller et al., 2006). However, there is a lack of research on the perspectives of visitors towards wildlife tourism management, and the possible influence of gender on these opinions. Such knowledge could be of importance when nature management is designed.

3. The context of seal watching in Iceland

Two seal populations breed in Iceland, harbour seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) (Granquist, 2021; Granquist and

Hauksson, 2019). Both seal populations are on the national red list for threatened populations; the harbour seal population is endangered (Granquist, 2021), and the grey seal population is vulnerable (Granquist and Hauksson, 2019). The interest in seal watching tourism in Iceland has grown during the recent decades (J. F. Aquino et al., 2021) and it is well documented that anthropogenic disturbance, for example due to tourism, can affect seals negatively both on the individual and the population level. The sensitive conservation status of seal populations, combined with the fact that a national seal watching management plan is absent in Iceland, calls for further management actions. Evidence-based management on how to minimize disturbance during seal watching is important to aid in minimizing the impacts that tourism may have on seals.

Further understanding of the gender dynamics of pro-environmental attitudes is valuable in designing proper management strategies at seal watching sites. The aim of this study was to investigate gender differences regarding life guiding value orientation and attitudes towards nature management in a wildlife tourism setting. The differences between male and female visitors regarding the following variables will be explored: (1) Biospheric and egoistic values; (2) Awareness of potential impacts of seal watching on the seal colonies and the usefulness of regulations; and (3) Opinions of seal watching visitors concerning seal watching management actions.

4. Methods

Our data were retrieved from a previous research study (Chauvat et al., 2021) which concerned opinions and values of visitors at seal watching sites in Northwest Iceland. The case study was conducted in the summers of 2017 and 2019 in Vatnsnes, a Northwest Iceland peninsula where seal watching is the most significant drive for tourism (Aquino and Kloes, 2020). The museum of the Icelandic Seal Center can be found in Hvammstangi, the only village in Vatnsnes, and at the time of data collection, three seal watching sites were open for visitors along the peninsula. Between 2017 and 2019, the number of visitors for the seal museum was around 10,000 per month (Aquino and Kloes, 2020), with a maximum number of visitors along the peninsula estimated at 25, 000 per month (ISC, personal communication, 2019). We analyzed data from a questionnaire (Chauvat et al., 2021) that was presented to a random sample of visitors at two seal watching sites and at the museum. A total of 597 visitors were surveyed, with a response rate of 64.8%. Gender was self-identified by respondents; 52.1% were men, 46.9% were women, and 1% did not answer. Respondents came from 41 different countries; 8.5% of respondents were Icelandic residents, 71.5% of were European, 12% were North American, with other areas representing the remaining 8%. The mean age of respondents was 41.3 years old, and 75% of respondents had a bachelor's degree or higher.

Levels of biospheric and egoistic value orientation were each measured using four questions rated on a 5-point Likert scale adapted from the Brief Inventory of Values (BIV) developed by Stern et al. (1998). Subsequently, a principal component analysis was carried out, which showed that answers concerning respective value orientations were highly correlated and could be linearly combined to calculate a single score of biospheric value orientation and egoistic value orientation levels for each respondent (Table 1). Other data measured using a Likert scale included perceptions of the impacts of seal watching and of the usefulness of regulations to alleviate these impacts, and opinions about various management actions. The Kruskal-Wallis test was used to assess if the answers of men and women were significantly different. It was chosen because the samples compared are independent and the hypothesis of normality cannot be assumed. The Bonferroni p-value adjustment method was used to decrease the chances of incorrectly rejecting the null hypothesis.

Table 1

p-values of Kruskal-Wallis tests determining whether there are significant differences between answers in men and women, and differences between the means of answers given by men and women.

Value orientation	Kruskal-Wallis p-value	Difference between means
a) Biospheric value orientationb) Egoistic value orientation	2.7E-06 1.8E-01	0.59 -0.15
Awareness of the impacts of seal	Kruskal-Wallis	Difference
watching and the usefulness of regulations	p-value	between means
c) Does seal watching have negative impacts?	2.2E-02	0.17
d) Can management actions alleviate impacts?	4.5E-02	0.16
e) What distance are seals disturbed by tourists?	6.4E-02	1.89
Opinions about suggested management	Kruskal-Wallis	Difference
actions	p-value	between means
f) What distance limitation would you accept?	9.5E-01	0.39
g) How do you feel about regulations?	2.2E-02	0.27
h) Should guides be mandatory at seal watching sites?	1.2E-01	0.18
i) Should seal watching sites be closed during pupping season?	5.9E-03	0.15
j) Should seal watching be regulated?	8.0E-03	0.20
k) Should helicopters above colonies be banned?	7.3E-01	-0.04
 Should there be distance limitations for seal watching boats? 	1.5E-08	0.41
m) Are codes of conduct enough?	8.5E-01	0.03
o) Should swimming with seals be allowed?	2.8E-04	0.32
p) Should feeding seals be allowed?	1.4E-01	0.02
q) Should touching seals be allowed?	1.6E-02	0.09
r) Should there be seal watching distance limitations on land?	7.5E-05	0.22
s) Should there be a fee to enter seal watching sites?	6.8E-01	-0.02

5. Results

Evaluated items and differences in answers between female and male respondents are presented in Table 1. Possible answers given in the questionnaire for the different questions are as follows:

a: Calculated scores of biospheric orientation. Scores ranged between -7,26 and 1.64.

b: Calculated scores of egoistic orientation. Scores ranged between -3.34 and 4.25.

c-d: Likert scale. 0: I don't know – 1: very unlikely – 2: likely – 3: very likely – 4: always.

e-f: Multiple choice question. 10m-25m - 50m-75m - 100m.

g: Likert scale. 1: unimportant – 2: somewhat unimportant – 3: neutral – 4: somewhat important – 5: extremely important.

h-s: Likert scale. 1: strongly disagree – 2: somewhat disagree – 3: neutral – 4: somewhat agree – 5: strongly agree.

Significant difference between genders are highlighted and positive values of differences between mean answers of male and female respondents indicate that female answers were higher on average.

5.1. Biospheric and egoistic value orientations

Although in general both men and women were found to have a strong biospheric value orientation, women had significantly stronger biospheric value orientation than men (p-value <0.001). There was no significant difference between the levels of egoistic values orientation of men and women (p-value = 0.18) (Table 1).

5.2. Awareness of the impacts of seal watching and the usefulness of regulations

The two questions: "In general, do you think seal watching could have a negative impact on seals?" and "to the best of your knowledge can management actions, such as ethical guidelines for tourists, help alleviate negative impacts on seals?", were the only ones in the survey for which the answer "I don't know" was available. There was no significant difference between the proportion of people who answered "I don't know" between genders for both questions (p-value = 0.26 and 0.89 respectively). Answers of the respondents who did not know were therefore omitted in further analysis. Women were significantly more likely to be aware of possible negative impacts of tourism on seals (pvalue <0.05), and that management actions could alleviate impacts (pvalue <0.05) (Table 1).

The question related to perception of impacts and general seal watching knowledge: "at what distance do you think seals are disturbed by approaching tourists?". There was no significant difference between men and women's answers to this question (p-value = 0.06), although on average, women estimated seals to be disturbed at a distance slightly higher than men (Table 1).

5.3. Opinions about regulations

In general, women had a significantly more favorable attitude towards controlling seal watching through regulations ("How do you feel about seal watching activities being controlled through some regulations?", p-value <0.05 and "Should seal watching be regulated?", pvalue <0.05). They also had significantly more positive opinions than men towards half of the specific management actions that were presented: the closure of sites during pupping season (p-value <0.05), distance regulations for seal watching on land (p-value <0.001) and for boats (p-value <0.001), the prohibition of swimming or diving with seals (p-value <0.001) and of touching seals (p-value <0.05) (Table 1).

6. Discussion and conclusion

The study showed that, when comparing visitors, women had significantly higher biospheric value orientation and pro-environmental attitudes. This includes a significantly higher awareness of possible negative impacts of seal watching on seals, and a significantly more favorable attitude towards half of management actions presented. On the other hand, men were not significantly more favorable than women towards any of the suggested management actions mentioned in the questionnaires nor regarding any of the questions concerning awareness of potential disturbance. Higher biospheric value orientation has been linked to increased pro-environmental behavior (e.g. López-Mosquera and Sánchez, 2012; Perkins and Brown, 2012). Since the detected differences in values and opinions may impact visitor behavior in nature, we argue that further understanding of gender dynamics regarding pro-environmental attitudes are a valuable element in the context of wildlife tourism management strategies. Developing efficient ways to encourage visitors to behave ethically at seal watching sites is crucial to keep the industry sustainable. Our results are particularly important because some studies suggest that women may be more likely to participate in wildlife watching activities such as boat-based whale watching (Cárdenas et al., 2021; García-Cegarra and Pacheco, 2017; Parsons et al., 2010) and seal-watching (Curtin et al., 2009). We argue that future research should examine the behavior of visitors participating in wildlife activities, and possible differences in gender. For future seal watching tourism research, we suggest that the links between gender, values, perceptions of wildlife watching impacts, opinions of management actions, and compliance with guidelines at wildlife watching sites should be investigated. Further understanding of gender dynamics or possible factors promoting the ethical behavior of a group of visitors would be valuable in designing proper management strategies

at seal watching sites and could lead to further implications for wildlife watching management in general. For example, because of their higher biospheric values and their more favorable views towards management, women may be more receptive towards management actions, and could even act as role models within their visiting groups (Wagstaff and Wilson, 2010). Furthermore, individuals' perception of levels of biospheric values in their peer groups may influence pro-environmental behavior (Wang et al., 2021), meaning that collective behavior of visitor groups in nature could be positively influenced by women. More broadly, educational materials and conservation efforts could be developed with specific measures to appeal more to different demographics, taking gender into account (Munien et al., 2019).

Additionally, gender diversity in management has been shown to result in better outcomes for nature conservation in various contexts. For example. US firms with more women on their boards have been found to be more environmentally conscious (Kassinis et al., 2016); and even when they express the same environmental concerns, women are significantly more likely to support environmental regulations at the European Parliament (Ramstetter and Habersack, 2019). In India and Nepal, the participation of women in executive committees responsible for community governance of forests has resulted in significantly better improvement of forest conditions (Agarwal, 2009). Wildlife watching tourism is a sector that is intrinsically linked to nature and its conservation, and the findings of our case study are supported by these examples which suggests that gender should be considered in the process of developing management actions for wildlife watching sites. As shown in Hoarau-Heemstra and Eide (2019), values can be drivers of innovation in wildlife watching tourism businesses, where tourism activities are designed in ways that follow companies' core values and concerns. By encouraging women's participation in designing management plans for wildlife tourism, it is possible that their stronger biospheric values may result in innovation towards more sustainable wildlife watching.

It is important not to simplify gender issues in conservation as "women versus men", or women's involvement as a simple tool for conservation. Lau (2020) finds that these narrow views of gender have often been taken in conservation management and that this can lead to ineffective outcomes as well as the inadvertent reinforcement of inequitable processes. On the contrary, gender is a complex and dynamic concept, and the way it influences how people interact with their environment depends largely on context. Surveys have historically been flawed in reflecting the spectrum of genders (Garvey et al., 2019). The survey that was used in this paper, designed in 2017, included no options for respondents to identify their gender outside of the binary concepts of men or women. We recognize this limitation, and in future research, survey design should be more comprehensive to reflect the gender spectrum. Overall, a better understanding of how different genders specifically interact with wildlife watching management has intrinsic value, and further research should be conducted to deepen this knowledge. This will lead to greater support for the advancement of gender equity in conservation management.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

References

- Aquino, J.F., Burns, G.L., Granquist, S.M., 2021. A responsible framework for managing wildlife watching tourism: the case of seal watching in Iceland. Ocean Coast Manag. 210, 105670 https://doi.org/10.1016/J.OCECOAMAN.2021.105670.
- Aquino, J., Kloes, G., 2020. Neolocalism, revitalisation and rural tourism development. In: Ingram, L.J., Slocum, S.L., Cavaliere, C.T. (Eds.), Neolocalism and Tourism: Understanding A Global Movement. Goodfellow Publishers. https://www.research gate.net/publication/344674291_Neolocalism_Revitalisation_and_Rural_Tourism_De velopment.
- Arnocky, S., Stroink, M., 2011. Gender differences in environmentalism: the mediating role of emotional empathy. Curr. Res. Soc. Psychol.
- Beeharry, Y., Bekaroo, G., Bussoopun, D., Bokhoree, C., Phillips, M.R., 2021. Perspectives of leisure operators and tourists on the environmental impacts of coastal tourism activities: a case study of Mauritius. Environ. Dev. Sustain.: A Multidisciplinary Approach to the Theory and Practice of Sustainable Development 23 (7), 10702–10726. https://doi.org/10.1007/S10668-020-01080-7.
- Bennett, N.J., 2016. Using perceptions as evidence to improve conservation and environmental management. Conserv. Biol. : The Journal of the Society for Conservation Biology 30 (3), 582–592. https://doi.org/10.1111/COBI.12681.
- Bjerke, T., Christer, T., Kleiven, J., 2007. Outdoor recreation interests and environmental attitudes in Norway. Manag. Leisure 11 (2), 116–128. https://doi.org/10.1080/ 13606710500520197.
- Burger, J., Niles, L., Dillingham, G., Dey, A., Feigin, S., Ng, K., 2022. Information needed for coastal management: perceptions of research and protection of shorebirds on a coastal beach are influenced by visitor type, age and gender. Urban Ecosyst. 1–16. https://doi.org/10.1007/S11252-022-01282-Z/TABLES/9.
- Byrd, E.S., Olynk Widmar, N.J., Yeager, E.A., Lee, J.G., 2017. Identifying wildlife species believed to be deserving of protection from hunting by U.S. Residents. Hum. Dimens. Wildl. 22 (4), 374–381. https://doi.org/10.1080/10871209.2017.1318323.
- Cárdenas, S., Gabela-Flores, M.V., Amrein, A., Surrey, K., Gerber, L.R., Guzmán, H.M., 2021. Tourist knowledge, pro-conservation intentions, and tourist concern for the impacts of whale-watching in las perlas Archipelago, Panama. Front. Mar. Sci. 8, 335. https://doi.org/10.3389/FMARS.2021.627348/BIBTEX.
- Chauvat, C.M., Aquino, J., Granquist, S.M., 2021. Visitors' values and perceptions of seal watching management in Northwestern Iceland. J. Sustain. Tourism. https://doi. org/10.1080/09669582.2021.1995395.
- Curtin, S., Richards, S., Westcott, S., 2009. Tourism and grey seals in south Devon: management strategies, voluntary controls and tourists' perceptions of disturbance. Curr. Issues Tourism. https://doi.org/10.1080/13683500802295663.
- Dietz, T., Fitzgerald, A., Shwom, R., 2005. Environmental values. In: Annual Review of Environment and Resources. https://doi.org/10.1146/annurev. energy.30.050504.144444.
- Dougherty, E.M., Fulton, D.C., Anderson, D.H., 2003. The influence of gender on the relationship between wildlife value orientations, beliefs, and the acceptability of lethal deer control in Cuyahoga Valley National Park. Soc. Nat. Resour. 16 (7), 603–623. https://doi.org/10.1080/08941920309187.
- Fulton, D.C., Manfredo, M.J., Lipscomb, J., 1996. Wildlife value orientations: a conceptual and measurement approach. Hum. Dimens. Wildl. 1 (2), 24–47. https:// doi.org/10.1080/10871209609359060.
- García-Cegarra, A.M., Pacheco, A.S., 2017. Whale-watching trips in Peru lead to increases in tourist knowledge, pro-conservation intentions and tourist concern for the impacts of whale-watching on humpback whales. Aquat. Conserv. Mar. Freshw. Ecosyst. 27 (5), 1011–1020. https://doi.org/10.1002/AQC.2754.
- Garvey, J.C., Hart, J., Metcalfe, A.S., Fellabaum-Totson, J., 2019. Methodological troubles with gender and sex in higher education survey research. Rev. High. Educ. 43 (1), 1–24. https://doi.org/10.1353/rhe.2019.0088.
- Graça, J., Calheiros, M.M., Oliveira, A., Milfont, T.L., 2018. Why are women less likely to support animal exploitation than men? The mediating roles of social dominance orientation and empathy. Pers. Indiv. Differ. 129, 66–69. https://doi.org/10.1016/J. PAID.2018.03.007.
- Granquist, S.M., 2021. The Icelandic Harbour Seal (Phoca vitulina): Population Estimate in 2020, Summary of Trends and the Current Status. HV, pp. 2021–2053.
- Granquist, S.M., Hauksson, E., 2019. Aerial Census of the Icelandic Grey Seal (Halichoerus Grypus) Population in 2017: Pup Production, Population Estimate, Trends and Current Status. *HV 2019-02*.
- Granquist, S.M., Sigurjonsdottir, H., 2014. The effect of land based seal watching tourism on the haul-out behaviour of harbour seals (Phoca vitulina) in Iceland. Appl. Anim. Behav. Sci. 156, 85–93. https://doi.org/10.1016/j.applanim.2014.04.004.
- Hermann, N., Voß, C., Menzel, S., 2013. Wildlife value orientations as predicting factors in support of reintroducing bison and of wolves migrating to Germany. J. Nat. Conserv. 21 (3), 125–132. https://doi.org/10.1016/J.JNC.2012.11.008.
- Hoarau-Heemstra, H., Eide, D., 2019. Values and concern: drivers of innovation in experience-based tourism. Tourism Hospit. Res. 19 (1), 15–26. https://doi.org/ 10.1177/1467358416683768.
- Kassinis, G., Panayiotou, A., Dimou, A., Katsifaraki, G., 2016. Gender and environmental sustainability: a longitudinal analysis. Corp. Soc. Responsib. Environ. Manag. 23 (6), 399–412. https://doi.org/10.1002/CSR.1386.
- Lau, J.D., 2020. Three lessons for gender equity in biodiversity conservation. Conserv. Biol. 34 (6), 1589–1591. https://doi.org/10.1111/COBI.13487.
- Lee, E., Park, N.-K., Han, J.H., 2013. Gender difference in environmental attitude and behaviors in Adoption of energy-efficient lighting at home. J. Sustain. Dev. https:// doi.org/10.5539/jsd.v6n9p36.
- López-Mosquera, N., Sánchez, M., 2012. Theory of Planned Behavior and the Value-Belief-Norm Theory explaining willingness to pay for a suburban park. J. Environ. Manag. https://doi.org/10.1016/j.jenvman.2012.08.029.

Loyd, K.A., Miller, C.A., 2010. Factors related to preferences for trap-neuter-release management of feral cats among Illinois homeowners. J. Wildl. Manag. 74 (1), 160–165. https://doi.org/10.2193/2008-488.

Lucrezi, S., 2021. Stakeholders' perceptions of coastal development in relation to marine protected areas. J. Coast Conserv. 25 (4), 1–18. https://doi.org/10.1007/S11852-021-00834-3/TABLES/5.

- Manfredo, M.J., Teel, T.L., Henry, K.L., 2009. Linking society and environment: a multilevel model of shifting wildlife value orientations in the Western United States. Soc. Sci. Q. 90 (2), 407–427. https://doi.org/10.1111/J.1540-6237.2009.00624.X.
- Milfont, T.L., Duckitt, J., 2004. The structure of environmental attitudes: a first- and second-order confirmatory factor analysis. J. Environ. Psychol. 24 (3), 289–303. https://doi.org/10.1016/J.JENVP.2004.09.001.
- Milfont, T.L., Sibley, C.G., 2016. Empathic and social dominance orientations help explain gender differences in environmentalism: a one-year Bayesian mediation analysis. Pers. Indiv. Differ. https://doi.org/10.1016/j.paid.2015.10.044.

Miller, K.K., Jones, D.N., Miller, K.K., Jones, D.N., 2006. Gender differences in the perceptions of wildlife management objectives and priorities in Australasia. Wildl. Res. 33 (2), 155–159. https://doi.org/10.1071/WR05036.

- Munien, S., Gumede, A., Gounden, R., Bob, U., Gounden, D., Perry, N.S., 2019. Profile of visitors to coastal and marine tourism locations in cape town, South Africa. Geojournal of Tourism and Geosites 27 (4), 1134–1147. https://doi.org/10.30892/ GTG.27402-421.
- Oerke, B., Bogner, F.X., 2010. Gender, Age and Subject Matter: Impact on Teachers' Ecological Values. Environmentalist. https://doi.org/10.1007/s10669-009-9250-4.

Parsons, E.C.M., Warburton, C.A., Woods-Ballard, A., Hughes, A., Johnston, P., Bates, H., Lück, M., 2010. Whale-watching tourists in west scotland. J. Ecotourism 2 (2), 93–113. https://doi.org/10.1080/14724040308668137.

Perkins, H.E., Brown, P.R., 2012. Environmental values and the so-called true ecotourist. J. Trav. Res. https://doi.org/10.1177/0047287512451133.

Pomeroy, R.S., Rivera-Guieb, R., 2006. Fishery Co-management: A Practical Handbook. CABI Publishing. Ocean and Coastal Management 235 (2023) 106483

Ramstetter, L., Habersack, F., 2019. Do women make a difference? Analysing environmental attitudes and actions of Members of the European Parliament. Environ. Polit. 29 (6), 1063–1084. https://doi.org/10.1080/ 09644016.2019.1609156.

Rokeach, M., 1973. The nature of human values. In: Nature, seventh ed., Vol. 1. Free Press.

- Sanborn, W.A., Schmidt, R.H., 1995. Gender effects on views of wildlife professionals about wildlife management. Wildl. Soc. Bull. 23 (4), 583–587. https://www.jstor.or g/stable/3782984.
- Stern, P.C., Dietz, T., Guagnano, G.A., 1998. A brief inventory of values. Educ. Psychol. Meas. https://doi.org/10.1177/0013164498058006008.
- Stern, P.C., Dietz, T., Kalof, L., 1993. Value Orientations, Gender, and Environmental Concern. Environment and Behavior. https://doi.org/10.1177/0013916593255002.
- van Eeden, L.M., Slagle, K., Newsome, T.M., Crowther, M.S., Dickman, C.R., Bruskotter, J.T., 2020. Exploring nationality and social identity to explain attitudes toward conservation actions in the United States and Australia. Conserv. Biol. 34 (5), 1165–1175. https://doi.org/10.1111/COBI.13488.
- Vaske, J.J., Jacobs, M.H., Sijtsma, M.T.J., 2011. Wildlife value orientations and demographics in The Netherlands. Eur. J. Wildl. Res. 57 (6), 1179–1187. https://doi. org/10.1007/S10344-011-0531-0/TABLES/3.
- Wagstaff, M.C., Wilson, B.E., 2010. The evaluation of litter behavior modification in a river environment. J. Environ. Educ. 20 (1), 39–44. https://doi.org/10.1080/ 00958964.1988.9942779.
- Wang, X., Van der Werff, E., Bouman, T., Harder, M.K., Steg, L., 2021. I Am vs. We are: how biospheric values and environmental identity of individuals and groups can influence pro-environmental behaviour. Front. Psychol. 12 https://doi.org/ 10.3389/FPSYG.2021.618956.
- Zinn, H.C., Pierce, C.L., 2002. Values, gender, and concern about potentially dangerous wildlife. Environ. Behav. 34 (2), 239–256. https://doi.org/10.1177/ 0013916502034002005.