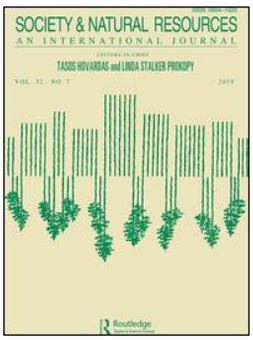

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Resident Perceptions of Distribution, Recognition and Representation Justice Domains of Environmental Policy-Making: The Case of European Ecological Network Natura 2000 in Poland

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ABSTRACT

Largescale nature conservation programs such as European ecological network Natura 2000 tend to fuel local conservation conflicts due to perceived unbalance between costs and benefits, lack of recognition and representation of residents in the decision-making process concerning policy implementation and management. This study considers Fraser's critical model of political justice to understand how residents construct N2000 justice and discuss the potential implications for the political framing of N2000 conflicts. The novelty of this approach lies in that it embraces various components within the three justice domains: distribution, recognition, representation, to shed light on N2000 conflicts and highligh justice as a way to legitimize N2000 policy.

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conservation conflicts; Natura 2000 justice; Poland; recognition; representation

Introduction

Largescale nature conservation programs are a frequent subject of conflict. Scholars recognize that implementation and management of new environmental programs unveil perceived injustices within local populations (Lange, Vogt, and Ziegler 2007; Montada and Kals 1995, 2000; Martin et al. 2016; Paloniemi et al. 2015). Justice issues usually concern the uneven distribution of resources, exclusion from decision-making, and identity politics (Figueroa 2006; Martin, McGuire, and Sullivan 2013; Martin et al. 2016; Schlosberg 2004; Sikor and Newell 2014; Walker 2012). These issues are embedded in a local context (Clayton 2018; Figueroa 2006). This paper contributes to the existing work in environmental policy by adopting Fraser's framework of political justice to empirically study conservation conflicts by means of critical justice theory. This approach

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combines three hitherto unconnected justice domains: distribution, recognition and representation.

This study considers Fraser's framework to understand how residents construct N2000 justice and discuss the potential implications for the political framing of N2000 conflicts. Natura 2000 (N2000) is the largest growing network of protected areas in the world – Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) – designated under the Birds and Habitats Directives. It covers more than 18% of the land surface area of the European Union (http://ec.europa.eu), which urges many local communities within the EU to consider N2000 sites in their local development ambitions (Cieślak et al. 2015).

Conceptually, N2000 offers an integrative approach to nature conservation (Borrass, Sotirov, and Winkel 2015; Kistenkas 2013) to allow for nature conservation that meets scientific standards of expert environmental values but at the same time is trying to cater to the preferences expressed by local communities. However, conflicting interests and perspectives among the affected stakeholders have challenged the implementation and management of this flagship EU biodiversity program (e.g. Apostolopoulou and Pantis 2009; Grodzińska-Jurczak and Cent 2011; Paloniemi et al. 2015). Conflicts have arisen primarily in the areas where residents felt that the implications of N2000 for the local communities were unfair (Paloniemi et al. 2015).

Poland has become a hotbed of N2000 conflicts (Grodzinska-Jurczak and Cent 2011), and makes a good case to illustrate how Fraser's framework assists a better understanding of environmental justice as a way to legitimize the policy. Moreover, the framework will also shed light on local constructions of what constitutes justice issues for the environmental policy in different situations. Considering this knowledge gap, we operationalize the concept of environmental justice within the domains of distribution (economic domain), recognition (cultural domain) and representation (political domain) (Fraser 2008) and propose a quantitative instrument to simultaneously study the distribution, recognition, and representation of these justice domains within N2000. After this, we perform a confirmatory factor analysis (CFA) to test the reliability and validity of its components (Churchill 1979) in the cases of three rural populations in Poland. The approach to identifying N2000 justice issues within distribution, recognition, and representation domains simultaneously sheds new light on N2000 conflicts, which arguably can challenge the quality of life in the Polish countryside.

The paper starts with a theoretical discussion of environmental justice and its application to N2000 conflicts to validate the scope of issues covered in the proposed measurement instrument (section 2). The conceptual section is followed by the development of the measurement instrument and its validation in the case of N2000 conflicts in Poland (sections 3 and 4). Discussion and conclusion follow in sections 5 and 6.

From Theory to Observation: Three-Domains of N2000 Justice

Over the last decade, scholars have increasingly discussed issues concerning distribution (costs, responsibilities, rights, and benefits), procedures by which decisions are made (who is recognized and respected for the equal status of distinct identities, values, and interests) and representation of local perspectives through the existing (Martin et al.

2016; Schlosberg 2007). However, empirical studies tend to overlook the complexity of situations in which policies neglect local environmental practices and exclude rural communities from the environmental decision-making process (Figueroa 2006; Friedman et al. 2018). Subsequent sections connect the conceptualization of the three justice domains with the manifestation of these issues in N2000 through the lens of existing research on N2000.

Distribution

In a classical understanding, a just distribution occurs "to everyone's advantage and at the same time position of authority and responsibility must be accessible to all" (Rawls 1999, 53). The focus on distribution in political discourse was translated into environmental justice theory in the 1980s with the idea that the environmental burdens/resources must be fairly distributed without excessive costs being placed on those with low socioeconomic status (Schlosberg 2007). Therefore, environmental justice has been studied primarily in the context of land use that creates costs on those living within proximity (Porter and Tarrant 2001). This perspective asks who gets to benefit from and who pays the cost of economic development (Martin et al. 2013). Whyte (2011) additionally proposed that distributive standards should also concern fair and open access to the opportunities environmental goods offer (e.g. access to green spaces). In sum, the distribution domain focuses on who gets what, and who has to live with what (Walker 2012).

This perspective well applies to the situation in Poland, where numerous N2000 conflicts emerged because the burdens and benefits from the policy were perceived as unjustly distributed among communities within "the new EU members" in comparison to communities located in "the old EU-15" countries (Grodzinska-Jurczak and Cent 2011; Cent 2014). Some communities included in the N2000 network thought of the policy as a top-down mechanism enforced at the expense of local economic development. Others believed (regardless of whether these beliefs are justified) that after the EU-15 achieved certain levels of economic prosperity 'at home', N2000 intended to assist extensive protection of pristine environments in less prosperous states such as Poland (Cent 2014; Bołtromiuk 2012).

Another aspect of perceived distributive injustice in N2000 concerns private property included in the network. Private landowners consider N2000 regulations limitations to 'their property rights'. Reduced opportunities for economic activities by individuals and municipalities tend to be reported to be the essence of such N2000 conflicts in Poland (e.g. Dubel et al., 2013). In addition, residents voiced a sense of injustice related to perceptions of limited benefits from economic activities nearby N2000 sites (Cent et al. 2007; Grodzińska-Jurczak et al. 2012; Kamal and Grodzinska-Jurczak 2014). In response to concerns raised within rural communities across Poland, the state proposed financing for private agricultural land that was fully or partly included in N2000 (under the agri-environmental scheme). The solution was, however, selective. It only aimed to assist sustainable practices in rural areas for agricultural land for which certain active measures or adjusted agricultural measures were required (Kamal and Grodzinska-Jurczak 2014). This solution sought to limit financial support to landowners with a specific type

of site and acreage. Not all farmland included in N2000 qualified to receive the payments and those funds became a source of perceived discrimination (Bołtromiuk 2012; Grodzinska-Jurczak and Cent 2011). Finally, poor communication and information distribution about N2000 to local communities in the early stages of the policy implementation generated mistrust about the management of the policy. Landowners experienced confusion about potential development and land use limitations. They had limited access to a crucial resource that has been shown to enable stakeholders to respond to the N2000 implementation process (Cent, Mertens, and Niedziałkowski 2013).

Recognition

Recognition injustices arise from "cultural domination (through patterns of interpretation and communication) of one's culture by another cultural perspective that may be different enough to force assimilation. Mainstream norms and cultural representations dominate everyday interactions, whereas alternative perspectives are socially and politically invisible, (Fraser 1996; Figueroa 2004). Without the necessity to assimilate into dominant cultural norms, recognition aims for conditions in which all people have the equal right to respect, and opportunity to participate in benefits and to avoid costs (Martin, McGuire, and Sullivan 2013). Fraser (2008) argues recognition precedes membership in political processes. Therefore, lack of recognition is a major cause of unjust redistribution. In a similar fashion, Young et al. (2016) urged to identify and acknowledge existing group difference.

In the environmental justice debate, recognition is about the appreciation of individual and group environmental identities, knowledge and traditional environmental beliefs. It requires respect for different ideas and identities, a cultural difference in personal interactions, public discourse and practice (Whyte 2011). Recognition is a form of environmental justice related to political power to speak of and manifest values (Martin, McGuire, and Sullivan 2013). It provides a promising perspective to understand the management of tensions between social and ecological values in conservation conflicts (Martin, McGuire, and Sullivan 2013) and to understand who does and does not get to make environmental policy decisions (Figueroa 2006).

Top-down designation sites and procedures in favor of top-down decision-making provoked local conflicts over N2000, especially in situations where they coincided with poor communication about the N2000 goals (Cent, Grodzińska-Jurczak, and Pietrzyk-Kaszyńska 2014). Many local communities included in the N2000 network received piecemeal first information about the policy, which created myths and misconceptions about its impacts on local livelihoods. The exclusion of local communities from N2000 policy-making is the evidence of marginalizing the value of citizen contribution to the implementation of N2000.

Some of the community-driven conflicts at N2000 sites in Poland emerged over the protection of rare/endangered European plant and animal species that locally occur in abundance. Precisely, rural residents did not realize the biological significance of species protected under the EU directives and they disagreed to care for species and habitats that are abundant in their immediate environment. On the one hand, these N2000 on-site conflicts emerged due to poor recognition of local environmental heritages and

identities (Figueroa 2006). On the other hand, that lack of urgency among rural residents to protect locally abundant species, but not common extra-locally, could reflect their inadequate understanding of the region's environmental goals and the implications of N2000 for EU biodiversity. Very little was done to identify local stakeholders and communicate the EU perspective on the value of ecosystem services protected by N2000 (Cent 2014; Beunen and de Vries 2011).

Representation

Political representation adds a crucial facet to the pluralistic environmental justice framework as it "underlines social struggles over the right of being represented in space, society and political life" (Mels 2016, 418). It draws attention to an idea that the environmental policymaking must not only recognize local perspectives but also include local views in the outcome of this process (Fraser 1995, 2000, 2008). As such, matters of representation that commonly appear in conservation policy documents tend to reflect commitments to the local community.

Fraser (2008) advocates participatory parity as the ultimate goal within representation domain of justice. In this perspective, the principle of just environmental policy-making holds that residents have a right to participate in environmental decision-making and a right to inclusion in the legitimate political community. Procedures are means to achieve participatory parity- a situation in which social arrangements "permit all (adult) members of society to interact with one another as peers" (Fraser and Honneth 2003, 36). Procedures refer simply to who participates in decisions making, and specifically on what terms (Martin et al. 2016). In principle, they should result in just the decision-making process. In practice, however, decision-making procedures do not always translate into actual outcomes of the process (Phillips and Sexton 1999; Niedziałkowski, Paavola, and Jędrzejewska 2012a).

Representation of local communities in different modes of nature conservation governance through participatory mechanisms (such as the development of principles of N2000 management plans) turned out to be the central challenge for the N2000 program in Poland (Cent, Grodzińska-Jurczak, and Pietrzyk-Kaszyńska 2014; Bołtromiuk 2012). Namely, participatory arrangements for N2000 have not been able to deliver effective solutions to represent local stakeholders' perspectives in N2000 conflicts irrespective of the European national context (Apostolopoulou and Pantis 2009; Grodzińska-Jurczak and Cent 2011).

This can be seen in how the Polish state handled the issue of community representation. Once it decided in favor of stakeholder participation in N2000 management plans, regional administrative units (e.g. 16 Regional Directorates for Environmental Protection) chose which participatory mechanism they wished to employ. Because no EU funding has been directly allocated to N2000 management, the N2000 administrative units must compete against each other for financing their participatory solutions (EU, national, regional funds) (Bołtromiuk 2012). In practice, N2000 public participation depends on initiatives of regional directorates to apply for external funding (Dubel et al. 2013; Cent, Grodzińska-Jurczak, and Pietrzyk-Kaszyńska 2014). Furthermore, because N2000 sites were designated without local input, local stakeholders often lack

the enthusiasm to engage in the process of developing management plans despite the state's intention to consult rural communities (Grodzinska-Jurczak and Cent 2011). They feel management plans will not reflect their perspective (Cent 2014; Paloniemi et al. 2015).

Materials and Methods

To develop the measure, we name the *Perceived Environmental Justice Scale (PEJS)*, we followed Churchill's (1979) steps for developing reliable and valid scales and combined them with Rossiter's (2002) focus on establishing content validity (as in Boley, Strzelecka, and Woosnam 2018).

Steps 1 and 2: Specifying the Domain and Item Generation

These steps call researchers to review the literature. The nature of measurement is to be exact. The review process was guided by the conception of justice derived from Fraser's (2008) political theory of justice. Our review method incorporated two approaches to a literature review: a systematic approach (Pickering and Byrne 2014) and a narrative approach (Pickering et al. 2015). The purpose of the review was to identify the exact environmental justice concerns that should be included in the measurement instrument of perceived N2000 justice. Thus, we performed an article search in the ISI Web of Knowledge database, limited to a Web of Science Core Collection, EBSCO, JSTOR uisng the following keywords in various combinations: environmental justice, dimensions, Natura 2000, conservation conflict. We previewed more than 500 article abstracts to identify publications, contributing to the operationalization of environmental justice within the Fraser (2008) in the context of N2000 conflicts. Next, we looked for reference sections of the selected papers to identify studies that were not included in our database, such as articles published in Polish. Finally, we obtained over 100 papers and book chapters that we read in detail. Based on the reviewed literature a pool of 96 items was initially proposed and categorized within the three justice domains: distribution, recognition, representation (as per Fraser 2008). The original items were formulated in English and sent to three international experts in scale development with a request to provide feedback. This feedback served to revise the instrument and remove repetitious items concerning justice reducing the number of items to 57.

Steps 3 and 4: Pilot Survey and Purification

A pilot study to pretest the instrument included responses from 117 residents in the Zator municipality located in Malopolska (more than 50% of the municipality surface covered by N2000). The instrument sections corresponded with the conceptual model: distribution (20 items), recognition (15 items), and representation (22 items). The items were translated into Polish by a bilingual researcher whose translation was simultaneously evaluated by two independent Polish researchers, both were fluent in English.

The 117 returned questionnaires from Zator were entered into IBM SPSS Statistics 24. Exploratory Factor Analysis (EFA) using varimax rotation was used to illuminate

ways to purify the three domains of the instrument. We gave special attention to items that adversely affected the reliability and validity of the sub-scales. Specifically, we considered deletion of items based on (1) the strength of their factor loading, (2) the item effect on dimensionality, (3) the effect of the item's deletion on Cronbach's alpha, and (4) redundancy with other items (as in Boley, Strzelecka, and Woosnam 2018). At the end of the revision process, the measurement instrument (PEJS) included 13 items defining the distribution domain, 10 items defining recognition, and 13 items defining representation (in total 36 items).

Step 5: Primary Data Collection

Following Churchill's (1979) recommendation, a questionnaire including PEJS was administered to residents in three rural municipalities in the Polish region of Pomerania. The municipalities were selected based on joint criteria applied to all Polish municipalities ($n = 2477$).

1. Share of Natura 2000 Ecological Network in a whole area of a municipality; only municipalities that meet or exceed a threshold of 50% [$n = 241$ out 2477 municipalities in Poland]

The first criterion aimed to select municipalities with a substantial share of N2000 in the municipality area to increase the likelihood that this type of nature protection makes a mark on residents' everyday life.

Type of municipality: only rural municipalities [$n = 138$ out of 241 fulfilling the first criterion]

The second criterion aimed to ensure that selected municipalities have a rural character, to ensure residents' dependence on land use, farming activities or local natural resources.

Population (only municipalities with 5,000 or more inhabitants) [$n = 81$ out of municipalities fulfilling the first two criteria]

The third criterion aimed to ensure a sufficient pool of potential respondents in each municipality, and it was based on the data collection process in Poland reported by Strzelecka, Boley, and Strzelecka (2017).

To identify the municipalities, the three criteria were successively applied to the geodata set of all Polish municipalities, using the ArcMap 10.5.1. GIS calculations and selections for the first two criteria were performed using the official geodatabases from the Head Office of Geodesy and Cartography of Poland - State Border Register (GUGiK 2018a) and the General Geographic Database (GUGiK 2018b). For the third criterion, we used official data from Local Data Bank, Central Statistical Office of Poland (BDL GUS 2018).

Concurrently, municipalities were grouped as (1) municipalities where at least some of N2000 area overlaps with a national park, (2) municipalities where at least some of

the N2000 area overlaps with a landscape park, (3) municipalities where N2000 does not overlap either with a national park or a landscape park, which are the two prime large-area protected area types in Poland. Our goal was to choose case areas that differ in terms of their nature protection regime while being similar in terms of natural assets as well as socio-economic conditions. By choosing areas located close to one another, we were able to control for the impact of external events on residents' attitudes to nature such as natural disasters. These are valid arguments when the sense of environmental justice is approached as a 'relational value' of local natural environment derived from both the quality of the local environment and individual experiences of nature (Garcia-Martin et al. 2017).

Three municipalities in the Pomerania region fulfill the selection criteria. Lipnica (only N2000), Karsin (N2000 and Wdzydze Landscape Park) and Chojnice (excluding the city of Chojnice, N2000 and Bory Tucholskie National Park announcement) are all located in the southern parts of the region.

Survey Distribution Method

The surveys were administered to 12 out of 18 rural towns and villages within the boundaries of Lipnica municipality, 11 out of 13 rural towns and villages within the boundaries of Karsin municipality, and 14 out of 37 rural towns and villages within Chojnice municipality, in August of 2018. Distribution of the survey instrument corresponded with the actual number of residents in each village provided by the Central Statistical Office of Poland, to use a census-guided systematic random sampling scheme following the earlier successful study in the region (Strzelecka, Boley, and Strzelecka 2017).

Data collection consisted of a self-administered, door-to-door, pen-and-paper survey. Starting in randomly selected locations within each village, every household in those locations was visited by the team until the quota was met. We asked the head of the household or their spouse to participate in the study. If the resident agreed, a survey instrument was left with the participant and picked up later that day or the next day (i.e., two returns). Data were collected within four weeks (on weekends and weekdays) in July and August, 2018. Of the 531 distributed survey instruments in Lipnica, 418 were returned and 402 acceptable to be included in the analysis. Of the 669 distributed survey instruments in Karsin, 434 were returned and 413 were deemed acceptable to be included in the analysis. Finally, of the 734 distributed surveys in Chojnice, 572 were returned, and 534 were included in the analysis. This type of sampling scheme enables to gather a representative sample of residents, increases response rates, and includes those residents that may be left out from other sampling strategies.

Results: Validation of PEJS

The following steps, upon Churchill's (1979) recommendation, focused on assessing reliability and validity. Confirmatory Factor Analysis (CFA) was chosen for these steps because such an analysis provides a stringent test of how well the measure's items represent the construct (Hair et al. 2010).

Step 6: Confirmatory Factor Analysis

The measures of perceived environmental justice within the three domains distinguished by Fraser (2008) used a 5-point Likert scale. PEJS comprised of a total of 36 items subjected to Confirmatory Factor Analysis (CFA). *The distribution* domain consisted of 13 items asking about distributional aspects of N2000 policy that have contributed to N2000 conflicts. *Recognition* domain included 10 items focused on the issues of recognition of local culture, knowledge, and perspective on how N2000 is managed. *Representation* initially included 13 items focused on procedural solutions as well as the decision-making process in N2000. CFA for PEJS was separately run in IBM SPSS AMOS 25 Graphics for each of the municipalities. We respecified a measurement model when it showed a less-than-acceptable fit to the data and the respecification was theoretically justified (Anderson and Gerbing 1988).

Study One

CFA for Lipnica municipality revealed three factors of the PEJS distribution domain describing perceived *Benefits* from N2000, perceived *Limitations*, distribution of information and knowledge defined as *Communication*. CFA supported the unidimensionality of the other two domains of PEJS. Four items were removed from the distribution domain (Table 1), two items were removed from *Recognition*, and only seven items remained in *Representation*. The standardized factor loading of the removed items was below a value of 0.70. Exceptionally, items with standardized factor loading between 0.60-0.69 were also included in the analysis, if the overall model fit dropped after removing an item (Hair et al. 2010). The reliability of all the identified factors was from very good to excellent (Cronbach alpha (CR) above 0.7) (Table 2).

In order to establish construct validity for Lipnica municipality we examined convergent and discriminant validities. Convergent validity is shown by all C.R. values exceeding 1.96 at a significance level $p < 0.001$ (Table 1). Discriminant validity can be seen through the estimates of the average variance extracted (AVE) exceeding the squared correlations between each factor (Hair et al. 2010) (Table 3). This method ensures that each factor is unique by testing to see if the amount of variance explained by each factor (i.e., AVE) is higher than the amount of variance shared between different factors (i.e., the squared correlation). Thus, construct validity was established for all the factors within the measurement model for Lipnica.

Study Two

CFA for Karsin municipality shows two factorial structure of the distribution domain defining perceived *Benefits* from N2000, and perceived *Limitations*. Five items were removed from the distribution domain due to a standardized factor loading below a critical value of 0.70 (Hair et al. 2010) (Table 4). *Recognition* consisted of 6 relevant items, and Representation consisted of 7 relevant items. The reliability (CR) of all the identified factors was very good (above 0.8) (Table 5).

Construct validity was not established for *Recognition* and *Representation* in the Karsin sample. While convergent validity was shown by all CR values exceeding 1.96 at a significance level $p < 0.001$ (Table 4), average variance extracted (AVE) estimates for

Table 1. Confirmatory factor analysis, Lipnica.

Factor and corresponding item	$\bar{x}$	Error	R	C.R
DISTRIBUTION				
Benefits from N2000				
1. On average, residents benefit from N2000	2.71	1.11	0.75	14.44
3. Benefits from N2000 are distributed according to residents' needs.	2.52	1.16	0.66	14.81
4. N2000 program will on average leave residents' better off.	2.72	1.22	0.82	15.86
5 Residents get adequate support for managing N2000	2.47	1.09	0.75	–
Limitations from N2000				
8. Residents' economic activities are restricted because of N2000	3.47	1.30	0.79	15.77
9. Infrastructure development is impeded because of N2000	3.24	1.30	0.88	16.47
10. Opportunities for economic development of this region are limited because of N2000	3.31	1.21	0.78	–
Communication				
11. Residents are well informed about N2000]	2.70	1.25	0.69	–
13. Issues related to N2000 are managed in a proper manner	2.72	1.06	0.87	9.14
RECOGNITION				
1. The way N2000 is managed corresponds with my perspective	2.35	1.06	0.74	15.23
2. My concerns about N2000 have been recognized in N2000 decision making in this municipality	2.25	1.06	0.73	15.02
3. My views, as a resident, are considered in managing N2000 sites.	2.32	1.13	0.83	15.45
4. My economic needs are recognized through N2000 regulations	2.25	1.05	0.80	16.56
6. As a resident of this municipality, I am equal partner in the implementation of N2000	2.41	1.11	0.70	14.28
8. Residents have been recognized as an equal partner in managing N2000	2.48	1.02	0.74	15.15
9. Residents' interests are taken into consideration in managing N2000	2.43	1.11	0.70	14.37
10. My voice counts in decision making for N2000	2.07	1.03	0.76	–
REPRESENTATION				
1. I can influence decision concerning N2000	2.12	1.11	0.70	14.94
2. I can participate in managing N2000.	2.01	1.07	0.77	15.33
3. I have many opportunities to share my concerns about N2000.	1.98	1.09	0.83	18.69
4. I have equal right to participate in decision making for N2000.	2.07	1.09	0.79	17.65
5. I have multiple opportunities to engage in development of management plans for N2000 sites	1.99	1.00	0.84	18.95
6. I can influence the way N2000 is managed	1.95	1.01	0.80	17.85
7. I have been able to participate in developing regulations for managing N2000	1.92	1.01	0.80	–

Measure of model fit: χ^2 ($df = 239$)=503.496, $\chi^2/df = 2.107$ $p < 0.001$, CFI = 0.953, GFI = 0.906, RMSEA = 0.053

Table 2. Construct reliability and validity, Lipnica.

	CR	AVE	MSV	MaxR(H)
Benefits	0.856	0.598	0.402	0.859
Limitations	0.857	0.667	0.030	0.859
Communication	0.762	0.667	0.267	0.803
Recognition	0.913	0.567	0.508	0.916
Representation	0.921	0.625	0.508	0.924

AVE: average variance extracted; CR: construct reliability; MSV: maximum shared variance.

Table 3. Discriminant validity, Lipnica.

	1	2	3	4	5
1. Communication	**0.667**[a]	0.187[b]	0.016	0.267	0.147
2. Benefits	0.433[c]	**0.598**	0.029	0.401	0.230
3. Limitations	0.127	−0.172	**0.667**	0.000	0.506
4. Recognition	0.517	0.634	−0.021	**0.567**	0.508
5. Representation	0.384	0.480	0.713	0.713	**0.625**

[a]The bold diagonal elements are the measures of average variance explained (AVE) for each factor.
[b]Above diagonal elements are the squared correlations between factors.
[c]Below diagonal elements are the correlations between factors.

Recognition and *Representation* did not exceed the squared correlations between each factor (discriminant validity) (Hair et al. 2010) (Table 6). In sum, construct validity was established for *Benefits* and *Limitations* factors within the measurement model for Karsin municipality.

Study Three

CFA for Chojnice municipality revealed three unique factors of the distribution domain. The factors were defined as perceived *Benefits* from N2000, *Compensation*, and *Communication*. Six items were removed from the distribution domain in total due to a standardized factor loading below a critical value of 0.70) (Table 7). Two items with standardized factor loading between 0.60-0.69 were included in the analysis because after removing them the overall model fit dropped. The CFA supported the unidimensionality of the other two domains of N2000 justice. *Recognition* consisted of 7 relevant items (a total of 3 items removed), whereas *Representation* consisted of 7 items (a total of 6 items were removed). Reliability of all the identified factors was good (above 0.7) (Table 8).

Convergent validity for Chojnice is illustrated by all CR values exceeding 1.96 at a significance level $p < 0.001$ (Table 7). Discriminant validity was shown through the average variance extracted (AVE) estimates exceeding the squared correlations between each factor (Hair et al. 2010) (Table 9). Thus, construct validity was established for all the factors within the measurement model for Chojnice municipality.

Discussion of Results

Empirical studies of justice concerns over environmental policies can facilitate a better understanding of factors that shape people sense of injustice in conservation conflicts. This project proposed one way of doing it, namely by operationalizing the notion of environmental justice within three interconnected domains (distribution, recognition, representation) of Nancy Fraser's theory of political justice (Fraser 2008). The novelty of this

Table 4. Confirmatory factor analysis, Karsin.

Factor and corresponding item	$\bar{x}$	Error	R	C.R
DISTRIBUTION				
Benefits from N2000				
1. On average, residents benefit from N2000	3.02	1.33	0.77	14.20
2. Benefits from N2000 are equally distributed among residents of this region	2.63	1.20	0.75	13.88
3. Benefits from N2000 are distributed according to residents' needs.	2.70	1.15	0.82	15.10
4. N2000 program will on average leave residents' better off.	3.11	1.20	0.76	14.09
5. Residents get adequate support for managing N2000	2.70	1.19	0.70	–
Limitations from N2000				
8. Residents' economic activities are restricted because of N2000	3.21	1.22	0.72	13.07
9. Infrastructure development is impeded because of N2000	3.27	1.31	0.90	13.13
10. Opportunities for economic development of this region are limited because of N2000	3.07	1.20	0.70	–
RECOGNITION				
3. My views, as a resident, are considered in managing N2000 sites.	2.46	1.16	0.76	17.91
4. My economic needs are recognized through N2000 regulations.	2.40	1.11	0.71	16.29
7. Potential differences of interests have been promptly acknowledged in managing N2000 sites.	2.62	1.08	0.70	15.90
8. Residents have been recognized as an equal partner in managing N2000.	2.46	1.18	0.82	19.99
9. Residents' interests are taken into consideration in managing N2000.	2.53	1.16	0.85	21.13
10. My voice counts in decision making for N2000	2.27	1.20	0.84	–
REPRESENTATION				
1. I can influence decision concerning N2000	2.10	1.14	0.79	17.26
2. I can participate in managing N2000.	2.09	1.17	0.75	16.26
3. I have many opportunities to share my concerns about N2000.	2.12	1.20	0.82	17.97
4. I have equal right to participate in decision making for N2000.	2.23	1.21	0.89	20.05
5. I have multiple opportunities to engage in development of management plans for N2000 sites.	2.08	1.15	0.77	21.04
6. I can influence the way N2000 is managed	2.08	1.15	0.81	23.63
7. I have been able to participate in developing regulations for managing N2000	2.10	1.16	0.78	14.97

Measure of model fit: $\chi 2$ ($df = 177$)=323.722, $\chi 2/df = 1.829$ $p < 0.001$, GFI = 932, CFI = 0.974, RMSEA = 0.045.

Table 5. Construct reliability and validity, Karsin.

	CR	AVE	MSV	MaxR(H)
Benefits	0.873	0.579	0.518	0.877
Limitations	0.821	0.608	0.032	0.864
Recognition	0.904	0.612	0.681	0.912
Representation	0.927	0.645	0.681	0.932

AVE: average variance extracted; CR: construct reliability: MSV: maximum shared variance.
Discriminant validity concerns:
The square root of the AVE for REP is less than the absolute value of the correlations with another factor;
The square root of the AVE for REC is less than the absolute value of the correlations with another factor;
the AVE for REP is less than the MSV;
the AVE for REC is less than the MSV.

Table 6. Discriminant validity, Karsin.

	1	2	3	4
1. Limitations	**0.608**[a]	0.031[b]	0.004	0.001
2. Benefits	−0.178[c]	**0.579**	0.518	0.316
3. Recognition-	−0.065	0.720	**0.612**	0.681
4. Representation	−0.029	0.563	0.825	**0.645**

[a]The bold diagonal elements are the measures of average variance explained (AVE) for each factor.
[b]Above diagonal elements are the squared correlations between factors.
[c]Below diagonal elements are the correlations between factors.

approach lies in that it embraces various components within the three justice domains to shed light on N2000 conflicts and highligh justice as a way to legitimize N2000 policy. The resident survey including the developed version of a Perceived Environmental Justice Scale (PEJS) was distributed in Lipnica, Karsin, Chojnice with the goal that each selected municipality represents a combination of different nature protection regimes. The results revealed differences among the municipalities in terms of exact justice concerns being relevant to residents within each justice domain. We discuss them in light of broader literature on N2000 policymaking to illustrate that people define environmental justice in relation to specific local situations (Clayton and Opotow 2003).

As such, in reference to the distribution domain (as in Fraser 2008) of N2000 justice, our results highlight four potential areas of concern: (1) N2000 benefits, (2) limitations, (3) compensation, and (4) N2000 communication. For instance, N2000 benefits factor in Lipnica and Karsin includes concerns about equal distribution, quality of life and N2000, and support for co-managing N2000 sites. However, residents of Chojnice were only concerned about criteria of distribution (equal vs according to need). Similarly, limitations due N2000 were a relevant issue in Lipnica and Karsin, while residents of Chojnice expressed no concern about N2000 limitations and instead they focused on just compensation (Table 9).

One explanation of this result could be that residents of Chojnice hold a unique conception of N2000 justice. This is possible because many local N2000 sites are embedded in Bory Tucholskie National Park, which represents a more strict nature protection regime than the N2000 network and imposes more immediate limitations to regional economic development (Zawilińska and Mika 2013). While, this result, stands somewhat in contrast to Yakusheva's (2019) argument that communities included in the N2000 network and a national park overlook benefits of living nearby N2000 sites and instead focus on N2000 limitations, historical and political context of national parks in Poland may impact residents' justice concerns related to N2000.

Table 7. Confirmatory factor analysis, Chojnice.

Factor and corresponding item	Mean	Error	R	C.R
DISTRIBUTION				
Benefits from N2000				
2. Benefits from N2000 are equally distributed among residents of this region	2.86	1.13	0.75	13.53
3. Benefits from N2000 are distributed according to residents' needs.	2.90	1.04	0.85	–
Compensation				
5. Residents get adequate support for managing N2000	2.83	1.06	0.69	13.67
6. Residents who experience burdens due to N2000 are fairly compensated.	2.85	1.09	0.74	14.39
7. Financial compensations for N2000 are fairly distributed among residents.	2.75	1.01	0.73	–
Communication				
12. It is easy to access information about N2000.	3.04	1.24	0.64	11,61
13. Issues related to N2000 are managed in a proper manner.	2.96	0.97	0.87	–
RECOGNITION				
2. My concerns about N2000 have been recognized in N2000 decision making in this municipality.	2.63	1.07	0.68	–
3. My views, as a resident, are considered in managing N2000 sites.	2.58	1.06	0.68	17.55
5. Residents' knowledge about this local nature has been used to designate N2000 sites.	2.83	1.06	0.72	14.86
6. As a resident, I am equal partner in the implementation of N2000.	2.35	1.17	0.72	14.78
7. Potential differences of interests have been promptly acknowledged in managing N2000 sites.	2.74	1.00	0.72	14.91
8. Residents have been recognized as an equal partner in managing N2000.	2.69	1.11	0.76	15.18
9. Residents' interests are taken into consideration in managing N2000.	2.79	1.07	0.74	14.98
10. My voice counts in decision makinf for N2000.	2.42	1.15	0.74	15.29
REPRESENTATION				
2. I can participate in managing N2000.	2.14	1.10	0.72	15.25
3. I have many opportunities to share my concerns about N2000.	2.05	1.07	0.76	15.98
4. I have equal right to participate in decision making for N2000.	2.31	1.10	0.79	16.51
5. Residents are given multiple opportunities to engage in development of management plans for N2000 sites.	2.10	1.06	0.85	17.70
6. I can influence the way N2000 is managed.	2.16	1.06	0.84	17.61
7. I have been able to participate in developing regulations for managing N2000	2.17	1.07	0.81	17.00
10. Procedures for N2000 enable me to engage in decision making	2.56	1.04	0.68	–

Measure of model fit: $\chi 2$ ($df = 191$)=422.235, $\chi 2/df = 2.,211$, $p < 0.001$, GFI= 0,935; CFI = 0.964, RMSEA = 0.048.

Table 8. Construct reliability and validity, Chojnice.

	CR	AVE	MSV	MaxR(H)
Compensation	0.764	0.519	0.423	0.423
Benefits	0.785	0.647	0.383	0.800
Communication	0.736	0.588	0.423	0.797
Recognition	0.897	0.521	0.483	0.898
Representation	0.916	0.611	0.483	0.923

AVE: Average variance extracted; CR: Construct reliability: MSV: Maximum shared variance.

Table 9. Discriminant validity, Chojnice.

	1	2	3	4	5
1. Compensation	**0.519**[a]	0.383[b]	0.422	0.173	0.173
2. Benefits	0.619[c]	**0.647**	0.306	0.256	0.128
3. Communication	0.650	0.553	**0.588**	0.310	0.111
4. Recognition	0.594	0.506	0.557	**0.521**	0.483
5. Representation	0.417	0.358	0.334	0.695	**0.611**

[a]The bold diagonal elements are the measures of average variance explained (AVE) for each factor.
[b]Above diagonal elements are the squared correlations between factors.
[c]Below diagonal elements are the correlations between factors.

The polish national park system precedes the N2000 network by more than half of a century, and by almost a decade in the case study area (Bory Tucholskie National Park was established in 1996). Parks are long established in the social consciousness of rural communities as isolated islands, and still generate strong negative attitudes among rural residents (Hibszner 2013). The negative attitudes toward areas designated as national parks in Central and Eastern Europe were originally produced by historical and political conditions of socialism (Kluvánková-Oravská et al. 2009), when nature conservation resembled "hierarchical and expert-based industrial production system dealing with designation of protected areas" (Niedziałkowski, Paavola, and Jędrzejewska 2012a, p.2). That system excluded rural residents from decision-making and deprived them of any influence on the 'operations' of protected areas as the Polish state relocated entire villages just to make room for new parks (Mika and Zawilinska 2015). While one could also argue landscape parks would have a similar effect on concerns about N2000 benefits and limitations to local populations (as in Karsin, where N2000 overlaps with a landscape park), these parks have a considerably lower effect on residents' everyday life (Krajewski 2019) increasing relevance of limitation concerns over N2000 policymaking. While N2000 stands out from national and landscape parks in Poland in terms involvement of various non-state actors (Niedziałkowski et al. 2016), former experiences with the parks can still affect residents' perception of justice in N2000 overlapping the other areas of nature protection.

Finally, an unexpected weather event could also be a factor that influenced local perceptions of N2000 at the time of the study in Chojnice. In August 2017, severe convective windstorms caused extensive damage to the region's forest, which resulted in a total ban on access to forest areas of Bory Tucholskie National Park. This likely strengthened residents' perceptions of the park as an 'isolated island' (Yakusheva 2019), while under these circumstances limitations due to N2000 became once again irrelevant.

With regard to the communication of N2000 in Poland, the study contributes to scholarly discussions on the importance of a trustworthy source of information and knowledge about N2000 (Paliogiannis, Cliquet, and Nico Koedam 2019). The results

suggest that N2000 information and knowledge transfer increase acceptance of the N2000 policy only when the state employs culturally relevant ways to communicate with rural residents. Burgess, Harrison, and Filius (1998), who examined environmental communication in different cultural contexts, arrived at similar conclusions.

Moreover, in light of perceived economic uncertainties due to N2000, well-informed stakeholders can more effectively engage in the local policy networks, and strengthen consensus for N2000 reconciliation of biological and social components of nature conservation (McCauley 2008, Ferranti, Beunen, and Speranza 2010; Grodzinska-Jurczak and Cent 2011; Cent, Mertens, and Niedziałkowski 2013). However, common, yet culturally inappropriate communication mechanisms are ineffective. Such as in case of residents of Karsin, where the access to information and knowledge turned out to be unrelated to the perceived legitimacy of N2000 (if we think about justice as a source of legitimacy of environmental policy as theorized in Beetham (1991). The result, therefore, complements prior studies on N2000 conflicts in Poland which link limited access to information about N2000 with the negative perception of N2000. Arguably, poorly informed residents have limited possibilities to exert influence on the outcome of N2000 policymaking (Bołtromiuk 2012; Grodzinska-Jurczak and Cent 2011; Cent, Mertens, and Niedziałkowski 2013).

In all three municipalities, respondents found recognition and representation to be pertinent domains of N2000 justice. Despite the differences among municipalities in terms of exact concerns reported within each domain, residents generally identified the following faces of recognition (1) consideration of individual views, (2) partnership in N2000 policymaking, (3) integration of conservation interests and resident interests in decision making for N2000. On the other hand, the representation domain highlights residents concern about the ability to participate in managing N2000 and in the creation of management plans for N2000 sites or, sharing experiences and worries about N2000. In Chojnice, residents also highlighted the importance of procedures that 'enable' representation of local perspectives in policymaking. Notably, residents of Karsin did not distinguish between recognition and representation domains Karsin, which strengthens the theoretical argument about the interdependence of the two constructs (Fraser 2008).

In relation to recognition and representation in N2000, prior studies of nature conservation in Poland discussed the increasing role of local communities in the governance of protected areas (Niedziałkowski, Paavola, and Jędrzejewska 2012a; Niedziałkowski et al. 2015), perception, quality and outcome of participation in N2000 (Grodzińska-Jurczak et al. 2012, Niedziałkowski et al. 2018) or even the role of NGO's in the participatory processes of N2000 (Cent et al. 2013). Cent et al. (2013) especially highlighted the role of NGOs in forming advocacy coalitions for N2000 in Poland. Scholars unanimously stress, N2000 became a catalyst to transition toward new nature conservation thinking in Poland striving for greater involvement of stakeholders in environmental policymaking (Niedziałkowski, Paavola, and Jędrzejewska 2012a; Niedziałkowski, Paavola, and Jędrzejewska 2012b; Kluvánková-Oravská et al. 2009). However, in spite of studies showing that perceived justice can be an important predictor of the acceptability of environmental policies (e.g., Lange, Vogt, and Ziegler 2007; Montada and Kals 1995; Visschers and Siegrist 2012; Clayton 2018), the sense of justice as the source (underlying factor) of N2000 acceptance among rural residents (or legitimacy) has not been explored.

With the aim of better understanding perceived environmental justice in the context of N2000 conflicts, we show that localized interpretations of N2000 justice emerged in response to particular circumstances (e.g. overlap with the national park) and are likely to draw on local values and identities (Clayton and Opotow 2003; Clayton 2018; Clayton, Koehn, and Grover 2013; Gottschlich and Bellina 2017; Phillips and Sexton 1999). Arguably, the local context makes certain N2000 justice concerns more relevant than others. The results implicate that such localized interpretations of environmental justice must be identified in each culturally and politically distinct area to legitimize N2000 policy. This then makes it worth to further discuss localized notions of N2000 justice as a source to legitimize N2000 policy (or other environmental policy).

Conclusions

Focus on economic, cultural, and political justice domains can be seen as counteractive to the traditional notion of environmentalism that privileged nature protection over social and economic inequalities (Dobson 1998). However, the perceptions of justice tend to have practical implications in terms of people's behavior (Gross 2008; Kals and Russell 2001; Muller, Kals, and Maes 2008). Furthermore, despite the growing agreement that knowing the roots of negative perceptions of environmental policies can be crucial for the effective mitigation of conservation conflicts (Soliku and Schraml 2018), contemporary literature falls short on empirical investigations of the localized interpretations of environmental policy justice. This research aimed to contribute to the closing of this knowledge gap.

On the whole, the study results asserted localized interpretations of the N2000 justice; hence, the need for greater inclusion of local cultural practices, and resident perspective on local nature through better communication channels and participatory mechanisms. Focus on recognition and representation issues when engaging residents (Christie et al. 2019) are central to developing solutions tailored to local conflicts (Vucetich et al. 2018). Finally, as the environmental justice discourse joins a coalition toward moving beyond eco-and anthropocentric distinction in nature conservation (Sandbrook et al. 2019), we hope that our findings and method can contribute to a better understanding of justice issues by providing a tool to illustrate how interpretations of environmental injustice emerge from local contexts and how they translate into conservation conflicts.

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