



## Assessing survey-based research in forest science: Turning lemons into lemonade? ☆



Mirjana Stevanov<sup>a,\*</sup>, Zuzana Dobšinska<sup>b</sup>, Peter Surový<sup>c</sup>

<sup>a</sup> University of Novi Sad, Institute of Lowland Forestry and Environment, Antona Cehova 13, 21000 Novi Sad, Serbia

<sup>b</sup> Technical University in Zvolen, Faculty of Forestry, T. G. Masaryka 24, 96053 Zvolen, Slovak Republic

<sup>c</sup> Czech University of Life Sciences, Faculty of Forestry and Wood Sciences, Kamycka 1176, 16521 Prague, Czech Republic

### ARTICLE INFO

#### Article history:

Received 27 December 2014

Received in revised form 6 April 2015

Accepted 10 July 2015

Available online 18 July 2015

#### Keywords:

Survey

Forest science journals

Methodological rigor

Quality assessment

Policy

### ABSTRACT

Survey-based research is the most widely applied and simultaneously most criticized approach. Whereas many disciplines failed to adhere to its fundamental principles, e.g. due to low response rates, often inadequate sampling procedures, or an over-reliance on the cross-sectional approaches, in forest science no systematic evidence can be found, even though this kind of inquiry has been used for almost six decades now. We therefore examine how much research in forest science is survey-based and how its amount has developed over time? Has survey-based research in forest science matured? Has this research applied sound methodology and what are the main avenues for improvement? To find answers, we analyzed survey-based articles published in 20 forest science journals from 2005 to 2014 and found that an average of 3.2% of research was survey-based. We could identify a significant increase in the percentage of survey-based articles among the total articles published throughout the same time period. By further analyzing the relative contribution of exploratory, descriptive and explanatory types of survey-based articles, among the total amount of articles we found that the increase in the percentage was mostly concentrated on the group of explanatory articles. According to the research maturity cycle, this indicates that survey-based research in forest science is maturing. By additionally applying a framework of 16 assessment items to our data, we evidenced that for half of these items methodology could have been more carefully applied. Respective improvement avenues were detected by using the Survey Assessment Matrix (SAM).

© 2015 Elsevier B.V. All rights reserved.

### 1. Surveys — a widely utilized and widely criticized approach

Surveys became one of the most commonly used research approaches worldwide (Pfleeger and Kitchenham, 2001). They involve a collection of information about opinions or attitudes in a way that the data is collected from a sample of elements by means of a questionnaire (Groves et al., 2009; Bachman and Schutt, 2007). After modern survey research methods were developed in the 1950s (Lazarsfeld and Oberschall, 1965; Oberschall, 1972) their rapid growth was influenced by several developments: political demands like election pooling became a regular fixture, computers helped increase the speed and accuracy of processing and reporting data, and newspaper editors and marketing gurus have turned to survey research as to an efficient method to systematically collect data from a broad spectrum of individuals and social settings (Bachman and Schutt, 2007).

In addition to efficiency, survey-based research also owes its continuing popularity to versatility and generalizability (Babbie, 2007; Bachman and Schutt, 2007; de Vaus, 2002). Firstly, this means that the

well-designed survey can substantially enhance the understanding of almost any issue (Baker et al., 2011; Bachman and Schutt, 2007; de Vaus, 2002). Furthermore, the survey's aim is to study a representative sample of units on the basis of which generalizable statements can be made about the object under study (Babbie, 2007; Gable, 1994; Baker et al., 2011). In fact, survey research rarely achieves perfection in this last dimension (Groves et al., 2009; Baker et al., 2011), but its application cuts across many institutional and disciplinary boundaries (Rea and Parker, 1997), which substantially increases its credibility (Baker et al., 2011). In congruence with these aspects, the survey approach is preferred over other field-based research approaches, such as case studies or experiments, for at least a few additional reasons: case studies are usually not quantitatively oriented, data are collected from a small(er) number of units, and phenomena are examined by applying an in-depth analysis, thereby precluding any attempt at generalization (Groves et al., 2009; Malhotra and Grover, 1998; Gable, 1994; Pinsonneault and Kraemer, 1993). Experiments are focused on individuals or small groups, they include in-depth analysis conducted in a controlled setting and the researcher can only study present phenomena (Babbie, 2007; Gable, 1994; Pinsonneault and Kraemer, 1993). On the contrary, survey-based research involves data collecting for a large number of units and examines phenomena in a wide variety of natural settings (Babbie, 2007; Gable, 1994; Pinsonneault and Kraemer, 1993).

☆ This article is part of a special issue entitled "Analytical Forest Policy Analysis: Advancing the empirical-analytical approach to forest policy analysis".

\* Corresponding author.

E-mail address: [mzavodj@gwdg.de](mailto:mzavodj@gwdg.de) (M. Stevanov).

According to Heeg (1971, in Krott (2001a)), the first indication of survey-based research in forest science dates back to the 1960s, when people's opinions and attitudes about tree-composition and other recreational and leisure activities in forests were examined with the help of a questionnaire. Since then, the use of survey-based research multiplied as the number of scientists engaged in forest policy research grew. Many of these scientists have forestry backgrounds, and non-foresters have gradually strengthened forest policy research in the last decade or more (de Jong et al., 2012). Furthermore, the connection between forest policy research and forest policy practice has diversified so that, in addition to sustainable forestry, scientists are now ideologically linked with climate change and biodiversity conservation as well (de Jong et al., 2012). In addition to these developments, De Jong et al. (2012:1) observed the advancement of the forest policy discipline through its theories: "instead of theorizing solely within a forest knowledge context", it is the theories and frameworks from policy science that have become increasingly used – either through the introduction of new approaches (e.g., Arts, 2012; Winkel, 2012; Kleinschmit, 2012) or through the diversification of existing approaches (e.g., Van Gossum et al., 2012; Böcher, 2012). Indeed, theories became the backbone of forest (policy) science (Krott, 2012), which did not only "borrow" much of this relevant component from established disciplines. For empirically-based forest (policy) science, the proper use and implementation of social science methods is at least equally valuable as the issue of appropriate theories (Krott, 2001a, 2001b).

In forest policy, adequate use and application of social science methods appears to be particularly relevant to survey-based research (Krott and Suda, 2001), which is known for its precise procedures that, when followed closely, yield valid and easily interpretable data (Pinsonneault and Kraemer, 1993). However, the failure of many studies to adhere to the fundamental principles of survey design and administration is evident in many disciplines that have adopted the survey approach from the social sciences (Stegenga, 2014; Baker et al., 2011; Dorner and Haas, 2008; van der Vaart and van Donk, 2008; Frank, 2007; van der Stede et al., 2005; Yu, 2003; Ismail and Ebrahimpour, 2002; Pflieger and Kitchenham, 2001; Malhotra and Grover, 1998; Mangione, 1995; Pinsonneault and Kraemer, 1993; Grover et al., 1993). This failure refers, among other things, to unsystematic and often inadequate sampling procedures, low response rates, an over-reliance on cross-sectional surveys when longitudinal ones are really needed, or to insufficient reliance on theory-based hypotheses and questions (Pinsonneault and Kraemer, 1993). Roberts (1999) underlines the limitations of highly structured questionnaires, collection of masses of data without much reliance on theories, existence of extensive measurement error (which makes reliability and validity questionable), and often inadequately established causal relations. All this might potentially explain why there are many social scientists who "don't trust surveys" (Opp, 2011: 605) or consider them "unscientific" (Graham and Campbell, 2001: 40).

Krott (2001b:7) argues that "the main problem of a survey does not occur when the researcher receives no answer, but when the answers are misunderstood" (author's translation). To illustrate this, he uses a simplified example: if 75% of interviewed farmers answer that the biggest afforestation obstacle lies in low financial support, then the researcher who collected and evaluated this information succumbs to self-deception. This occurs because farmers can, in principle, only express what they believe these causes are. In this particular case, 75% of the farmers believe that financial bottleneck causes afforestation problems. Secondly, instead of asking respondents directly about the causes, the correct methodological way would be to use a theory-based causal model and measure causative factors independently of farmers' afforestation activity. Otherwise, i.e. by having causes directly evaluated by the respondents, the potential for misinterpreting answers is high. In this case, it would be better not to have given the survey, than to "generate pseudo-knowledge, resulting in dangerous fallacies" (Krott, 2001a: 7). Such knowledge could, in the given example, strengthen an already

existing prejudice about low subventions and, as such, lead to the wrong policy recommendation(s).

In spite of the mentioned drawbacks, survey-based research attracts the attention of forest scientists to an increasing extent. This is visible, among others, through the growing number of survey-based articles published in forest science journals over the last decade (chapter 5). On the other hand however, no systematic evidence exists on the exact amount or quality of this kind of inquiry, even though it has been applied for almost six decades (Heeg, 1971). The work of Schusser helps answer the question of how to save resources while sustaining the methodological quality of survey research (Schusser et al., 2012; Schusser, 2013) but it does not include methodological rigor per se. In our paper, we examine this and other features of empirical survey-based research in the forest science. By understanding research as the "production of specific knowledge using scientific methods and standards" (Stevanov et al., 2013: 21) that enables empirical analyses to distinguish it from other forms of knowledge production (Giessen et al., 2009), we seek to answer the following questions:

- How much research in forest science is survey-based? How does the amount of survey-based research develop over time, i.e., is the relative share of survey-based research in overall forest research increasing, remaining stable, or diminishing?
- Has survey-based research in forest science matured? Is there a tendency towards any particular type of survey-based research?
- Does survey-based research in forest science apply sound methodology and what are the main avenues for improvement?

In the search for answers, we started with two assumptions: first, that the results of scientific research can be perceived as scientific knowledge only after they have been made public (Krumland, 2003; Real, 2008; both ref. to Weingart and Winterhager (1984)); and second, that within scientific results published in peer-reviewed journals, survey-based research results undergo the same review procedures as all other research (Stevanov et al., 2015). Based on these two assumptions, we took survey-based articles published in forest science journals as a proxy for the knowledge generated by survey-based research and analyzed these articles. We use descriptive, normative, and prescriptive elements to structure our analysis, the results of which are presented in chapter 5. Beforehand, we introduce the features of survey-based research (chapter 2), the sphere of concept (chapter 3), as well as materials and methods used to collect and analyze our empirical evidence (chapter 4).

The basis for understanding our paper as a contribution to meta-forest-literature, which is devoted to "research about forest research" is Cooley's view of meta-literature as having the potential to contribute critical insights into the nature, structure, and behavior of a particular discipline (Cooley, 1994). In that context, we share the perception of Malhotra and Grover (1998) that one cannot build upon prior work without evaluating its methodological rigor. We also agree with Pflieger and Kitchenham (2001) that assessments of current survey-based research can help avoid future pitfalls: "If a survey is a lemon, it stays a lemon," yet "learning from our mistakes is the way to make lemonade from lemons" (p. 16).<sup>1</sup>

## 2. Survey-based research

Some scholars refer to the survey as a method (Cecez-Kecmanovic, 2011; Roberts, 1999) others as a design (Bryman, 2012). We consider surveys to be a form of a research that relies on a comprehensive system of collecting, analyzing, and interpreting data that is used to explore, describe, compare, or explain behavior, opinions/attitudes/beliefs,

<sup>1</sup> Pflieger and Kitchenham were first who used the "lemons and lemonade" metaphor in their paper from 2001.

Download English Version:

<https://daneshyari.com/en/article/91314>

Download Persian Version:

<https://daneshyari.com/article/91314>

[Daneshyari.com](https://daneshyari.com)