Journal of Environmental Management 187 (2017) 8–15

Contents lists available at ScienceDirect

Journal of Environmental Management

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

Research article

Effects of a coordinated farmland bird conservation project on farmers' intentions to implement nature conservation practices – Evidence from the Swedish Volunteer & Farmer Alliance

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ARTICLE INFO

Article history:
Received 19 April 2016
Received in revised form
27 September 2016
Accepted 13 November 2016
Available online 17 November 2016

Keywords:
Common agricultural policy
Sustainable farming
Nature-friendly farming
Landscape-scale conservation
Evidence-based conservation
Advisory visits

ABSTRACT

To increase the efficacy of agri-environmental schemes (AES), as well as farmers' environmental engagement, practitioners are increasingly turning to collective forms of agri-environmental management. As yet, empirical evidence from such approaches is relatively scarce. Here, we examined a farmland bird conservation project coordinated by BirdLife Sweden, the Swedish Volunteer & Farmer Alliance (SVFA). The key features of the SVFA were farmland bird inventories from volunteering birdwatchers and on-farm visits to individual farmers from conservation advisors for guidance on AES as well as unsubsidised practices. Using an *ex-post* application of the theory of planned behaviour across project participants and a randomly sampled control group of farmers we assessed how SVFA affected behavioural intentions relating to AES and unsubsidised conservation, and how the behaviour was affected by attitudes, perceived social norms and perceived behavioural control. We also included a measure of self-identity as a conservationist to assess its importance for behavioural intentions, and if SVFA stimulated this self-identity. SVFA farmers reported greater commitment to implementing AES and unsubsidised conservation, as compared to the control group. However, greater commitment was associated with more positive attitudes for unsubsidised conservation only and not for AES, underlining the inability of existing AES to prompt intrinsic motivation. There were also differences between farmers within SVFA, where farmers applying to the project were motivated by social influences, while farmers recruited by project managers were motivated by their personal beliefs regarding nature conservation. Finally, farmers' self-perceived ability to perform practices (i.e. perceived behavioural control) was important for their commitment to implementing AES as well as unsubsidised practices. Therefore, increasing farmers' awareness regarding the availability and, not least, practicability of available conservation options may be the key to successful biodiversity conservation in agricultural systems.

1. Introduction

The adverse effects of agricultural intensification on farmland biodiversity and other natural resources demand wide-reaching mitigative action (Krebs et al., 1999; Benton et al., 2003). Agri-environmental schemes (AES) are in place in many parts of the world – including the European Union, USA, Australia, and other OECD countries (Vojtech, 2010) – but have so far failed to attenuate negative biodiversity trends (Kleijn and Sutherland, 2003; Batáry et al., 2011). From an ecological view, poor design of management options leads to schemes that fail to provide sufficient resources at appropriate spatial and temporal scales (Whittingham, 2007). A second limitation is the low frequency of AES agreements, particularly in highly intensified landscapes where adaptation costs and forgone profits are potentially higher than reimbursements (Kleijn and Sutherland, 2003; Quillérou and Fraser, 2010).

Further, top-down administration of most present-day AES may reduce their potential to generate cultural and social capital in

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http://dx.doi.org/10.1016/j.jenvman.2016.11.026
0301-4797/

farming communities (cf. Bourdieu, 1986), therefore restricting them from becoming embedded in farming communities (Burton et al., 2008; Burton and Paragahawewa, 2011; Herndl et al., 2011). Adoption of these practices primarily depends on payments for lost income and less on intrinsic motives (Lokhorst et al., 2011; Ahnström et al., 2013), which make their permanence vulnerable to production-oriented reforms. Clearly, farmers' decision-making about nature-friendly practices determines the fate of the agri-environment (Tilman et al., 2002; de Snoo et al., 2012).

Collaborative and coordinated approaches are increasingly advocated in order to resolve the described disadvantages of conventional AES (Oerlemans and Assouline, 2004; Franks and Emery, 2013; Prager, 2015). Broadly, collaboration refers to situations where land managers work together and maintain a dialogue regarding a shared objective, while in coordinated projects land managers work towards the same objective but without direct cooperation (Boulton et al., 2013). Collaborative as well as coordinated projects can be initiated and operated top-down (e.g. by government agencies or non-governmental organisations, NGOs) or bottom-up (by land managers). However, when benefits are primarily public, as in conservation of habitats or biodiversity, projects tend to be initiated top-down. When benefits mainly accrue to participants, as in management of resources with shared private interest or novel technology development in on-farm research ventures, projects are often bottom-up initiated (for a summary of collaboration models, see Prager, 2015).

Landscape-scale ecological networks are important for the many species in agri-ecosystems that depend on spatial scales larger than individual fields or farms (cf. Dutton et al., 2008). Many farm holdings are relatively small and often fragmented, and therefore the ecologically relevant scale and the scale of AES administration are often mismatched. Here, collective approaches can engage several farmers in coordinated action over larger areas, which is essential for successful biodiversity conservation (Whittingham, 2007; Batáry et al., 2011). While collective approaches to AES applications are generally lacking (but see Franks and Emery, 2013; McKenzie et al., 2013; van Dijk et al., 2015), many initiatives organised by e.g. conservation groups operate outside the umbrella of traditional AES and promote practices that are currently not compensated through policy (Boulton et al., 2013; Prager, 2015). In the light of diminished biodiversity protection subsidies in the 2014–2020 reform of the EU Common Agricultural Policy (see e.g. Pe'er et al., 2014 and Erjavec and Erjavec, 2015), such unsubsidised nature conservation practices are likely to be essential for biodiversity protection on agricultural land in the near future. Further, unsubsidised conservation may be driven more by intrinsic motivational factors as compared to AES (Lokhorst et al., 2011), but knowledge regarding the main determinants of adoption of these practices is still poor. Beyond ecological effects, collaborative management may also aid farmers' understanding and perceived ownership of agri-environmental issues, in turn stimulating manifestation of conservationist identities and social capital (Beedell and Rehman, 2000; McGuire et al., 2015), leading to socio-ecological resilience of agricultural landscapes (Burton and Paragahawewa, 2011).

In spite of these optimistic statements empirical support of environmental and social outcomes from collective biodiversity conservation is still scarce (Lubell, 2004; Koontz and Thomas, 2005). In this study, we examine the Swedish Volunteer & Farmer Alliance (SVFA): a farmland bird conservation project coordinated by BirdLife Sweden that connects farmers, volunteer birdwatchers and advisors from the Rural Economy and Agricultural Societies (see Section 2.1). We use concepts from social psychology and identity theory to study how project participation affects farmers' motivations for subsidised as well as unsubsidised nature conservation practices, as well as the proliferation of conservationist ideals.

1.1. The theory of planned behaviour

In the debate on the future management of the agri-environment, farmers' environmental decision-making is increasingly in focus (e.g. Tilman et al., 2002; de Snoo et al., 2012). In rural studies, the previous over-emphasis on the attitude-behaviour relationship has been questioned, accentuating the significance of normative influences, perceived self-efficacy and self-identity in decision-making (Burton, 2004a). In this study we use the theory of planned behaviour (TPB) to investigate how intentions to implement nature conservation practices are formed (cf. Ajzen, 1991). The TPB has been used to describe farmers' environmental decision-making across many socio-economic and geographic contexts (e.g. Beedell and Rehman, 2000; Borges et al., 2014; Lalani et al., 2016), including AES (Wauters et al., 2010; van Dijk et al., 2015) and unsubsidised conservation (Lokhorst et al., 2011; van Dijk et al., 2016). In the TPB, three key components jointly determine behavioural intention, namely: attitudes towards the behaviour (a personal evaluation whether the behaviour is positive/negative), subjective norms (the perceived social pressure to engage in the behaviour), and perceived behavioural control (the extent to which the individual perceives it possible to perform the behaviour).

The TPB is flexible to the inclusion of additional predictors if "it can be shown that they capture a significant proportion of the variance in intention or behaviour after the theory's current variables have been taken into account" (Ajzen, 1991). Here, self-identity has been demonstrated to play a significant role for behavioural intentions across a range of contexts (cf. Burton and Wilson, 2006; Ajzen, 2011), including farmers' decision-making about nature conservation practices (Conner and Armitage, 1998; Sparks, 2000; Lokhorst et al., 2011, 2014; van Dijk et al., 2015, 2016). The influence of self-identity on intention stems from identity theory (Stryker, 1968), which proposes that the self consists of multiple identities based on the different social roles that a person may have. Different identities may be more or less salient in affecting distinctive behaviours in different social contexts (Burke and Stets, 2009; McGuire et al., 2013). Collaborative conservation could potentially stimulate manifestation of farmers' conservationist identities (cf. McGuire et al., 2015), but to our knowledge there are no studies evaluating this.

1.2. Study aims

The overall aim was to describe and assess effects of a collaborative bird preservation project in Sweden, the Swedish Volunteer & Farmer Alliance (SVFA), on farmers' decision-making about nature conservation practices. This information can be used to improve existing and future collaborative projects, but also provides insights that can aid design of innovative AES that embed in farming culture.

Explicitly, we addressed two questions: 1. Do SVFA farmers have a greater commitment to engage in nature conservation compared to a randomly sampled control group of farmers? 2. What is driving such differences in commitment, with special consideration given to attitudes, subjective norms, perceived behavioural control and self-identity? These questions were addressed independently for measures connected to AES and to unsubsidised nature conservation.