

Human Elements of Pollinator Conservation

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HUMAN ELEMENTS OF POLLINATOR CONSERVATION

The alarming decline of pollinating insects in recent years has garnered a wave of interest from the media, scientists and the public. This has resulted in a wealth of research into pollinator conservation, but despite this, adoption of beneficial practices that support pollinators has been low amongst private landholders.

Dr Shannon Westlake and **Dr Kevin Hunt** of Mississippi State University have been investigating the human elements behind pollinator conservation, with the aim of developing targeted outreach and support programs to improve the uptake of conservation efforts amongst landholders.

The Importance of Pollinator Conservation

Over the past few years, the decline of insect pollinators has become a prominent topic, gathering much attention and research across the world. And with good reason. Large-scale pollinator loss could spell disaster for some of our most important food crops, and as such, it poses a significant risk to the continued food security of the growing human population.

Loss of suitable habitat, climate change and intensive agricultural practices such as pesticide use have all been implicated in pollinator declines. To conserve and restore pollinator populations, many governmental and non-governmental organisations have used the wealth of recent pollinator research to develop a suite of pollinator 'best management practices' (BMPs) for use on both public and private lands. Many of these pollinator BMPs, such as the use of cover crops and the creation of field margins, have additional

benefits to landholders, such as reduced soil erosion and improved soil quality.

Yet despite this, the uptake of pollinator BMPs has been low amongst private landholders. With the majority of the land in the USA owned or rented privately, the adoption of these BMPs amongst private landholders is becoming increasingly important to overall pollinator conservation efforts.

So why have private landholders not become more involved? This pressing question is at the forefront of a recent study conducted by Dr Shannon Westlake and Dr Kevin Hunt at Mississippi State University. These researchers set out to understand the current state of pollinator BMP adoption, attitudes and behaviours of landholders and potential constraints to implementation amongst private landholders in Mississippi, with the goal of developing targeted outreach and support recommendations to increase involvement within this group.



Understanding Attitudes

Although humans are responsible for the threats facing pollinator populations, humans also play an integral role in mitigating and reversing the damage through conservation efforts. Thus, the 'human dimensions' of conservation are an important area of research. 'Put simply, human dimensions research involves studying how people value natural resources, how they want natural resources managed, and how they affect or are affected by natural resources and natural resources management and decision making,' explains Dr Hunt.

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To determine the attributes that affect landholders' decisions of whether to adopt pollinator BMPs on their own land, Dr Westlake and her team surveyed Mississippi landholders privately owning or renting over 25 acres of land. The majority of Mississippi land is under private ownership, which reflects the land ownership patterns across the entire USA. However, some of the most important agricultural activities in the area, such as poultry and egg production, forestry and soybean cultivation, do not directly depend on insect pollination. Pollinator BMPs provide additional benefits to the landscape though, and thus, these practices provide value to landholders regardless of whether the primary activity on their land depends on pollinators.

Dr Westlake, Dr Hunt and their colleagues developed a new survey measurement instrument that allowed a thorough investigation of the interrelationships and influence of various attributes on landholders' intentions to adopt pollinator BMPs. By grouping landholders in different ways, they were able to determine the common attributes driving their

intentions to adopt pollinator BMPs. From the approximately 1000 usable responses that the researchers obtained, they found that most of the surveyed landholders had favourable attitudes towards pollinator conservation, with many having adopted at least one pollinator BMP either previously or currently. Many also felt social pressures to implement pollinator BMPs on their own land. However, this highlights the fact that favourable attitudes and social pressure may not be enough to encourage adoption of conservation BMPs.

Perceived constraints, whether in time, skills or resources, was the main attribute influencing the landholders' intentions to adopt pollinator BMPs in the future. 'Even if landholders have favourable attitudes and feel social pressure to adopt these pollinator BMPs, they still need to feel like they have the time, resources and skills to actually use them,' explains Dr Westlake.

Many of the landholders who participated in the study indicated that they lacked adequate knowledge of how to implement pollinator BMPs on their own land, even if they had previously

used one or more. 'This finding may seem surprising because there have been steady increases in messaging and conservation efforts focused on pollinators,' says Dr Westlake. 'However, having awareness is not the same as having knowledge.' Supporting this finding, the landholder groups that were already more involved in implementing pollinator BMPs had greater knowledge and less perceived constraints than the other groups.

Within the 'land use' categories, farmers had greater adoption of pollinator BMPs than those who used their land for other purposes, such as timber production, reflecting their greater experience with pollinator BMPs. 'These results indicate the importance of familiarity with pollinator BMPs for future adoption, as experience with BMPs may allow landholders to feel more confident in their abilities to use them on their properties,' says Dr Westlake.

Encouraging Greater Involvement

Currently, the messaging surrounding pollinator conservation is broad and non-specific, aiming to be applicable to as many landscapes and properties



as possible. However, while this has raised awareness of pollinator conservation, the lack of specific messaging has left many landholders without the knowledge they need to feel comfortable implementing pollinator BMPs on their own land.

The research team's study reveals that greater knowledge cultivation is necessary to increase future involvement in pollinator conservation. Dr Westlake suggests that to improve the current educational and outreach approaches for pollinator conservation, we need to develop targeted messaging that includes information about pollinator BMP costs, multiple benefits, relative advantages and implementation details. She also recommends that there needs to be more practical workshop opportunities, where landholders can observe demonstration areas, practice skills themselves and connect with others interested in pollinator conservation.

These steps aim to bridge the gap between awareness of pollinator conservation and implementation of pollinator BMPs, by improving familiarity, skills and knowledge amongst private landholders. Targeted education and outreach efforts may help to alleviate the perceived constraints of landholders, leading to increased adoption of pollinator BMPs.

Dr Westlake recommends that greater focus should be given to pollinator BMPs that provide multiple benefits, to create a wider support base across diverse landholders. For example, cover crops that help to prevent soil erosion can also provide nesting and foraging sites for insect pollinators. Increasing pollinator abundance also provides indirect benefits that landholders may find desirable, for example by helping to support the bird populations that use them as a food source. Helping to form knowledge connections like these may help to increase motivation in landholders, as they may feel that practices with multiple benefits have greater value.

Importantly, these suggested steps tap into a basic human need to connect with other people. By bringing together a group of people with a common interest, a great opportunity exists for discussion, sharing ideas and making connections. The sense of community gained from programs such as these help people feel more empowered and connected, and may



be an essential component in deepening their commitment to pollinator conservation efforts.

Future Human Dimensions Research

Getting the message to the right people may pose difficulties though. Dr Westlake, Dr Hunt and their colleagues found that the level of disconnect between landholders and sources of information was relatively high. Most landholders indicated that they rarely contacted other people for information about conservation BMPs, and they rarely used BMP publications or were entirely unfamiliar with them.

'This can prove challenging when attempting to share information about BMPs or encourage involvement in outreach workshops,' says Dr Westlake. 'Therefore, we need to work on developing ways to better reach landholders, especially in rural landscapes.' Further examination of communication channels and landholder networks is essential to increasing the reach of targeted conservation messages.

There is still a great deal left to learn about the human dimensions of pollinator conservation, and continuing this research is essential to increasing involvement in conservation efforts, especially amongst private landholders. Additional investigations are key to illuminate further attributes that influence intentions to adopt pollinator BMPs, and improve understanding of how regional differences impact landholder attributes and actions. Studies such as these could also be extended to other groups of people and other conservation efforts.

Although challenges remain and further research is necessary, the results from the team's study indicate that people are interested and ready to engage in pollinator conservation efforts. As Dr Westlake concludes: 'Now is the time to change the role of humans in pollinator conservation from problem to solution.'



Meet the researchers

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Dr Shannon Westlake recently earned her PhD from the College of Forest Resources at Mississippi State University, where she is currently helping champion the university's efforts to become a Bee Campus USA. Her research interests include pollinator conservation, citizen involvement in conservation efforts, and human dimensions, which have been the focus of her graduate research. Specifically, her dissertation focused on attributes affecting private landowner adoption of pollinator best management practices. In addition to her research activities, Dr Westlake has conducted outreach activities with schoolchildren, landowners, and extension professionals to improve their knowledge of pollinator conservation and encourage involvement.

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Dr Kevin Hunt earned his PhD in Wildlife and Fisheries Sciences from Texas A&M University. He is currently a Sharp Distinguished Professor of Human Dimensions, Director of the Human Dimensions Laboratory, and Coordinator of Graduate Studies in the Department of Wildlife, Fisheries and Aquaculture, at Mississippi State University. In addition to his research activities, Dr Hunt also devotes time to teaching undergraduate modules and supervising graduate students. His main research interests include the social and economic aspects of fishing, hunting, wildlife watching, and trapping.

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