

Forthcoming in *Biological Conservation*, 2016

Review of *Wildlife Conservation on Farmland, Volume 1: Managing for Nature on Lowland Farms*. Macdonald, D. W., and R. E. Feber, Editors. Oxford University Press, Oxford, 2015. 322 pp.

*Wildlife Conservation on Farmland, Volume 2: Conflict in the Countryside*. Macdonald, D. W., and R. E., Feber, Editors. Oxford University Press, Oxford, 2015. 324 pp.

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We live in an age where over one-third of amphibian species and one-quarter of mammalian species are globally threatened, as biodiversity steadily decreases. While there are many causes for this decline, intensive agriculture coincides with this loss, as species compete for space, water, light, and nutrients. In *Wildlife Conservation on Farmland Volumes 1 and 2*, the authors grapple with important questions concerning how to balance food production, while simultaneously preserving rich biodiverse landscapes. For the editors, food security and biodiversity are overlapping spheres. A key feature that differentiates farming systems is how we value distinct components of the whole, such as maximizing production, minimally damaging surrounding wildlife, and various aesthetic and cultural aspects of farmland. The editors break this larger project into two parts. In general, Volume 1, *Wildlife Conservation on Farmland: Managing for Nature on Lowland Farms*, focuses on strengthening the evidence used for managing outcomes. Connectedly, Volume 2, *Wildlife Conservation on Farmland: Conflict in the Countryside*, largely explores the mitigation of human-wildlife tensions in farming contexts. Both of these broad projects are approached from the standpoint of the Oxford University Wildlife Conservation Research Unit (or the WildCRU) and their extended family of affiliated researchers. By doing so, their hope is that the twin volumes will have broad appeal, as most of the articles are written in the form of case-studies that illustrate lessons which can be applied to a multiplicity of species and landscapes throughout the temperate world.

Specifically, Volume 1 identifies relevant issues at the nexus of agriculture and biodiversity loss and describes research performed by WildCRU on the impacts of management strategies on key habitat

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zones and species groups. For example, Chapters 2 and 3 take up the topic of field margins and, in particular, novel management challenges in these contexts. These chapters are especially valuable, as the authors outline insights gleaned from the long running Wytham field margins experiment on plant and animal community development. Later chapters provide in depth case-studies on the impacts of farming management strategies and practices on various species from mice to moths. While I found each of the chapters to be enlightening, other highlights of the volume include Chapter 11 and Chapter 12, as they focus on biodiversity management in habitats, such as waterbodies and woodlands, and Chapters 14 and 15, as they describe restoration programs, such as the reintroduction of water vole. The later chapters are particularly unique, as they explore questions that researchers often grapple with during the research process itself, such as when to stop research. In this vein, the authors also provide a detailed description of a species conservation effort, from the diagnosis of causes to recovery strategies. Readers involved in related projects may find these chapters enlightening. Volume 1 ends with a discussion of future directions of biodiversity management in the British countryside. The case-studies in this volume, when taken as a whole, provide a detailed discussion of over 30 years of agro-ecological research performed by WildCRU and insights on biodiversity management at every level of farming practice.

Volume 2 also focuses on agriculture and “nature,” but with the connected yet distinct aim of better understanding and addressing the tensions between people and wildlife. Biodiversity conservation efforts on farmland are rife with complex dilemmas that often do not have easy answers. As such, detailed studies of all species and habitats concerned should inform potential answers to wildlife management questions. In Chapter 1, the authors discuss the ethical dilemmas inherent in wildlife management and outline the common issues that occur on farmland. The following chapters largely consist of specific case-studies. For example, Chapters 2 and 3 describe how fox ecology can be used to address pest issues concerning the species, the controversy of fox hunting with dogs, and the interconnections between hunting, economics, and fox control efforts. Chapters 4 and 5 shift the focus

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to badger ecology and how this work can add to our understanding of climate change and inform the current debate on the transmission of bovine tuberculosis. Chapters 6, 7, 8, and 9 largely focus on various challenges faced when trying to control alien or non-native species, such as the American mink, American crayfish, and pheasant populations in England. These later chapters are especially important, as the often thorny issue of controlling the spread of non-native species is applicable across and beyond the temperate zone.

Both Volumes 1 and 2 of *Wildlife Conservation on Farmland* provide rich and detailed case-studies which include important lessons gleaned by WildCRU researchers in conservation and wildlife management in farming contexts. In particular, I found the second volume on human/wildlife conflict to be especially important, as it not only includes a discussion of moral dilemmas inherent in wildlife management decisions but also considers how these often difficult choices should be grounded in agro-ecological research. As readers no doubt know, such decisions do not happen in a vacuum. Every wildlife management and mitigation choice has long reaching effects, especially in the overlapping spheres of food security and the preservation of rich biodiverse landscapes. This is just one example of how the authors connect various “wicked” problems, such as species loss, climate change, food security, and ecosystem services, to farmland management. Overall, I was impressed by the breadth and depth of these volumes and the accessible style. The research is compelling, the chapters are well written, and the volumes largely succeed in their twin goals of strengthening the evidence used for managing outcomes and providing case studies useful for mitigating human-wildlife conflicts in farming contexts.

My only critique is that the chapters predominantly focus on farmland in lowland Britain and, for this reason, one could argue that the volumes have limited scope and usefulness. While some readers of *Biological Conservation* may find this problematic, the editors hope (and I agree) that the general lessons found in these volumes could be applied to different species and landscapes throughout the temperate world. This is especially the case for the chapters on agri-environment schemes, non-

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native species, and the impacts of various farming practices on wildlife. For this reason, the volumes will be of interest not only to specific species aficionados and those interested in British ecology, but also to policy makers, farming practitioners, and those in the animal and agricultural sciences. Finally, due to the clear writing style and plethora of case-studies, both volumes will be useful in the classroom, as well. *Wildlife Conservation on Farmland* is a must read for anyone interested in wildlife conservation, farming systems, and with balancing food production and conserving biodiversity.