

Weeds in your hedgerows? Actions to consider

Article by Marit Wilkerson, Graduate Group in Ecology and
Dept. of Plant Sciences, University of California, Davis

Background

Hedgerows have become an increasingly common feature in our Northern Central Valley landscape. They're popular for both conservation and ecosystem services (usually for pollinators) but are put in for a variety of other reasons as well. No matter the original reasons, most landowners, especially growers, do not like having to deal with weeds in their hedgerows. Weeds are a fact of life in this part of the country, but there are many methods to minimize their growth, distribution and impact.

For my PhD work at UC Davis, I examined spatially-explicit invasive plant (weedy species) patterns in over 35 hedgerows in Yolo, Solano, and Colusa counties. I also conducted a supplementary experiment that examined the direct effects of shading (via mesh shade-cloth) on invasive plant diversity and percent cover.



Hedgerow in northern Yolo county with PVC-pipe quadrat for sampling plants



Example of shade-cloth setup used for shading experiment

My goal was to draw out the characteristics of the hedgerow, surrounding landscape, or weeds themselves that might give clues as to how to minimize invasion. My interest in hedgerows and weeds stemmed from an interest in the use of hedgerows as “conservation corridors” (or linkages), strips of land that are meant to functionally connect up the landscape, allowing native animals and plants to move or disperse more effectively. However, those strips of land may harbor and support species we do *not* want moving across the landscape. In order for hedgerows to continue to be viable options for conservationists, restoration practitioners, and private landowners, especially agriculturalists, we need a better understanding of the unwanted species in those features.

Analysis

For my analysis, I combined the spatially-explicit patterns of all weed species I encountered in my study of hedgerows with data on the hedgerow and surrounding landscape, from dimensions to percent cover of planted natives to soil type to management variables to the type of surrounding landscape (row crop vs. orchard vs. fallow field, etc.). As you might guess, there were many variables that were possible to consider but since my focus was on variables that landowners could actually manipulate (not something like the weather!), I centered my analysis around those types of variables. Though invasive plant patterns were often very idiosyncratic (every hedgerow was a little bit different), strong and statistically significant results popped out of the clouds of data.

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Significant results

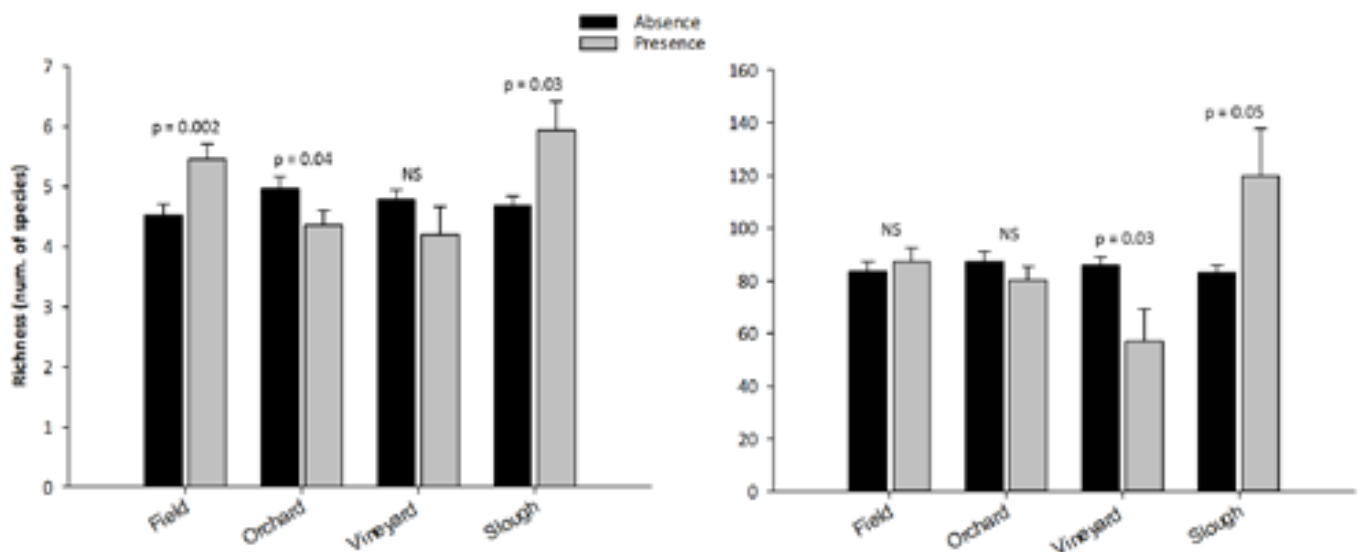
Results

1) Hedgerow edges are distinct from interiors with far less species diversity and abundance in interiors. That pattern is largely due to the intense shading provided by well-established, large planted shrubs



Picture of edge and interior of a 10-year old hedgerow. Far fewer invasive species in the shrub understory than in the edge.

2) Weed community patterns were most strongly associated or correlated with environmental, historical, and/or landscape explanatory variables. From these findings, I developed several management recommendations for hedgerow managers.



Total invasive (a) richness/diversity and (b) cover differed significantly based on whether or not they were adjacent to fields, orchards, vineyards, or sloughs. Effects of other surrounding landscape types (ditch, edge, and row crop) are not shown here as they did not strongly correlate with either richness or cover.

Stay tuned for more information on specific management recommendations coming out in the September newsletter. Please send any questions to mlwilkerson@ucdavis.edu and visit www.maritwilkerson.com to learn about my other hedgerow research