

248. Tradeoffs between biofuel and biodiversity in California—where are the sweet spots?

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Abstract: Meeting established goals for biofuels will require extensive land area to grow feedstocks. This area will be obtained by replacing food crops or pasture, or by converting nonagricultural

habitats. Such large-scale land use change could have significant consequences for the types and configuration of wildlife habitats in agroecosystems. We generated spatially explicit crop production scenarios that would meet California's biofuel targets and would be optimal from the economic perspectives of both farmers' and fuel producers. We then modeled the associated effects on habitat suitability for wildlife species. Species-specific changes in habitat suitability for reproduction, cover, and feeding were modeled at 1 square mile resolution for all California terrestrial vertebrates associated with agroecosystems. We identified areas of high potential conflict with wildlife values and also generated alternative scenarios that minimized loss of habitat suitability for all species while meeting biofuel targets. We considered our results in terms of the tradeoffs between wildlife habitat quality and biofuels production and their policy implications. Scenario modeling for biofuels and wildlife were performed through an innovative adaptation of the Marxan conservation planning software.

Keywords: agroecosystems, biofuel, habitat suitability, Marxan, trade-off analysis