

Jeff A. Tracey, Jun Zhu, Erin Boydston, Lisa Lyren, Robert N. Fisher, and Kevin R. Crooks. 2012. Mapping behavioral landscapes for animal movement: A finite mixture modeling approach. *Ecological Applications* VOL: pp-pp

APPENDIX D: Additional behavioral landscape maps and examples of applications to several areas in Orange County, California, USA.

This appendix provides extended examples of behavioral landscape maps generated from the finite mixture models for each bobcat. The models have been applied to several areas in Orange County, California, USA.

## D.1 Response Angle Densities Fit to Each Bobcat

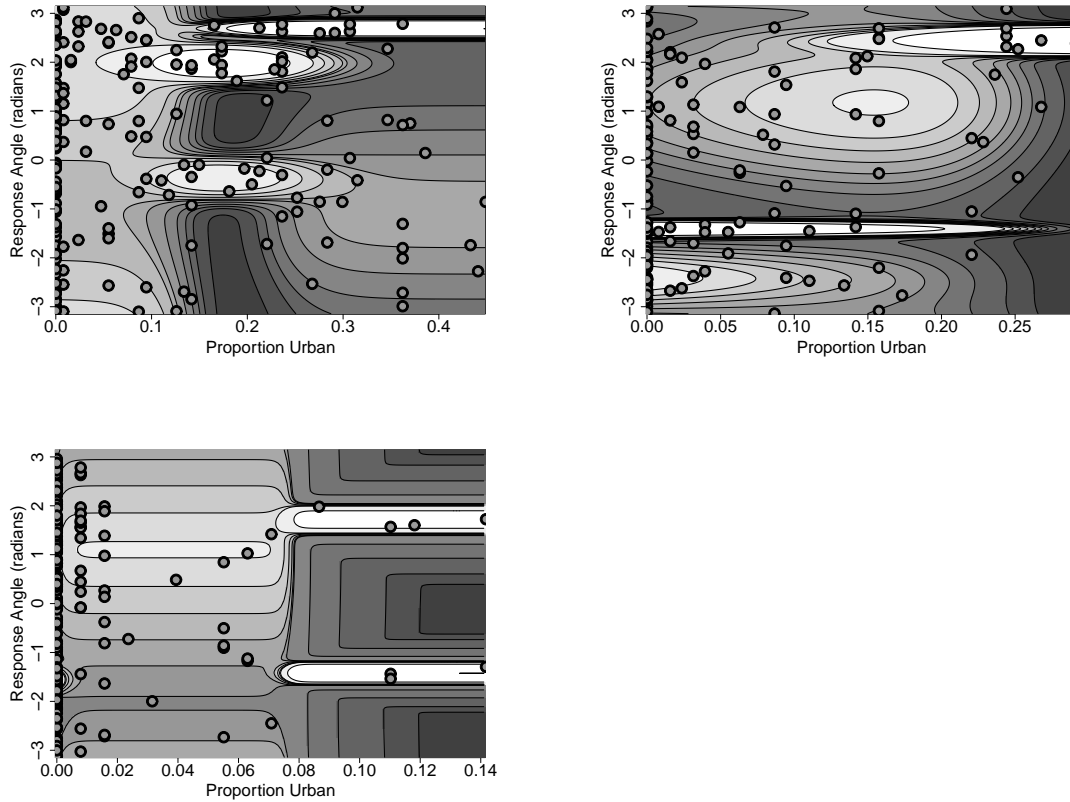


Figure D1: Finite mixture model probability densities versus proportion of urbanization within 200 meters of a bobcat location ( $X_{urban}$  for LYRU<sub>1</sub> (top left), LYRU<sub>2</sub> (top right), and LYRU<sub>3</sub> (bottom left)). The densities are shown as filled contour plots where lighter shades indicate higher density. The points represent the observed data.

## D.2 Maps of the Probability of Selecting Each FMM Component for Each Bobcat

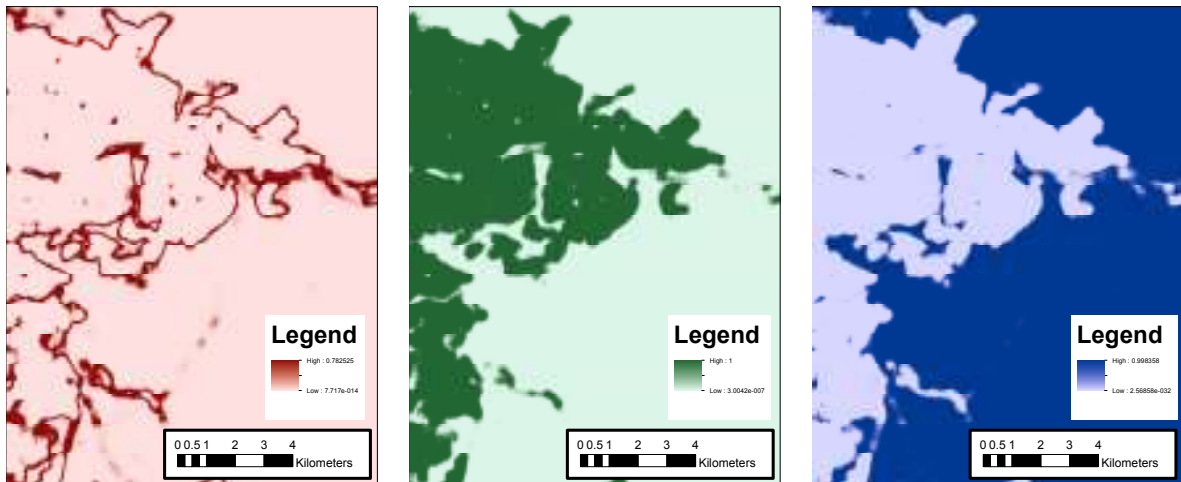


Figure D2: Maps for the probability of component 1 (left), component 2 (center), and component 3 (right) as a function of  $X_{urban}$  for model H for LYRU<sub>1</sub>.

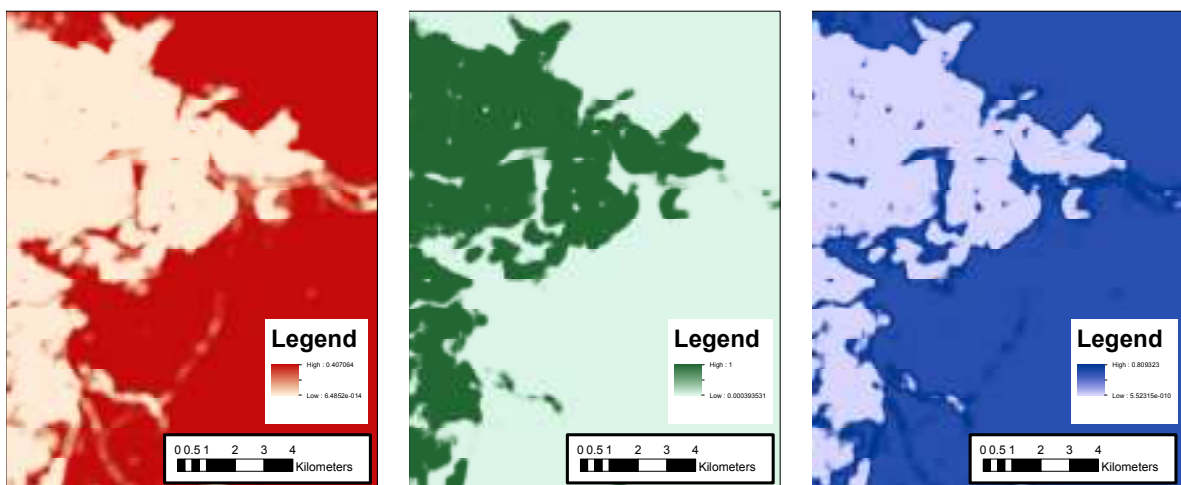


Figure D3: Maps for the probability of component 1 (left), component 2 (center), and component 3 (right) as a function of  $X_{urban}$  for model G for LYRU<sub>2</sub>.

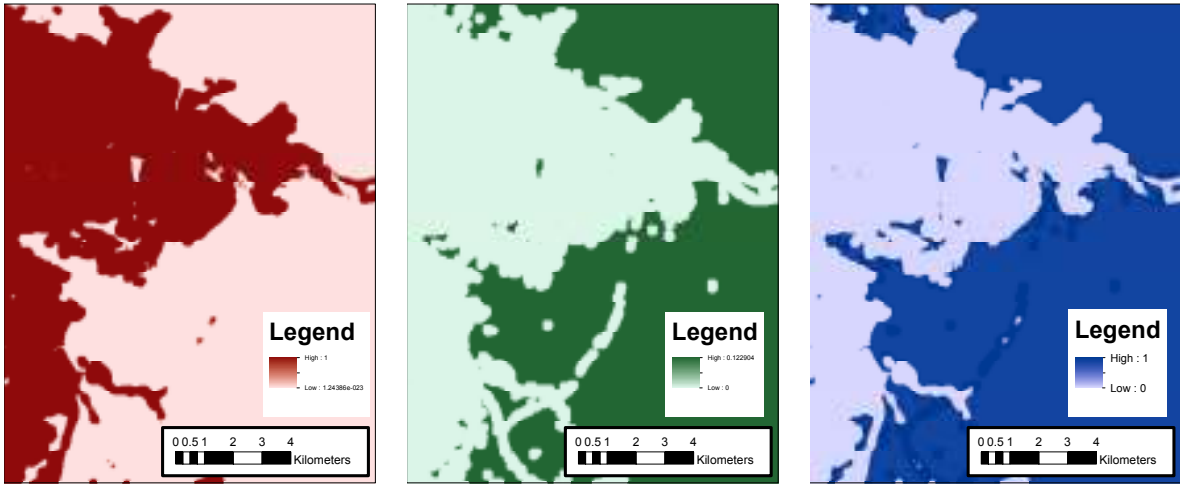


Figure D4: Maps for the probability of component 1 (left), component 2 (center), and component 3 (right) as a function of  $X_{urban}$  for model G for  $LYRU_3$ .

## D.3 Examples of Behavioral Landscape Maps

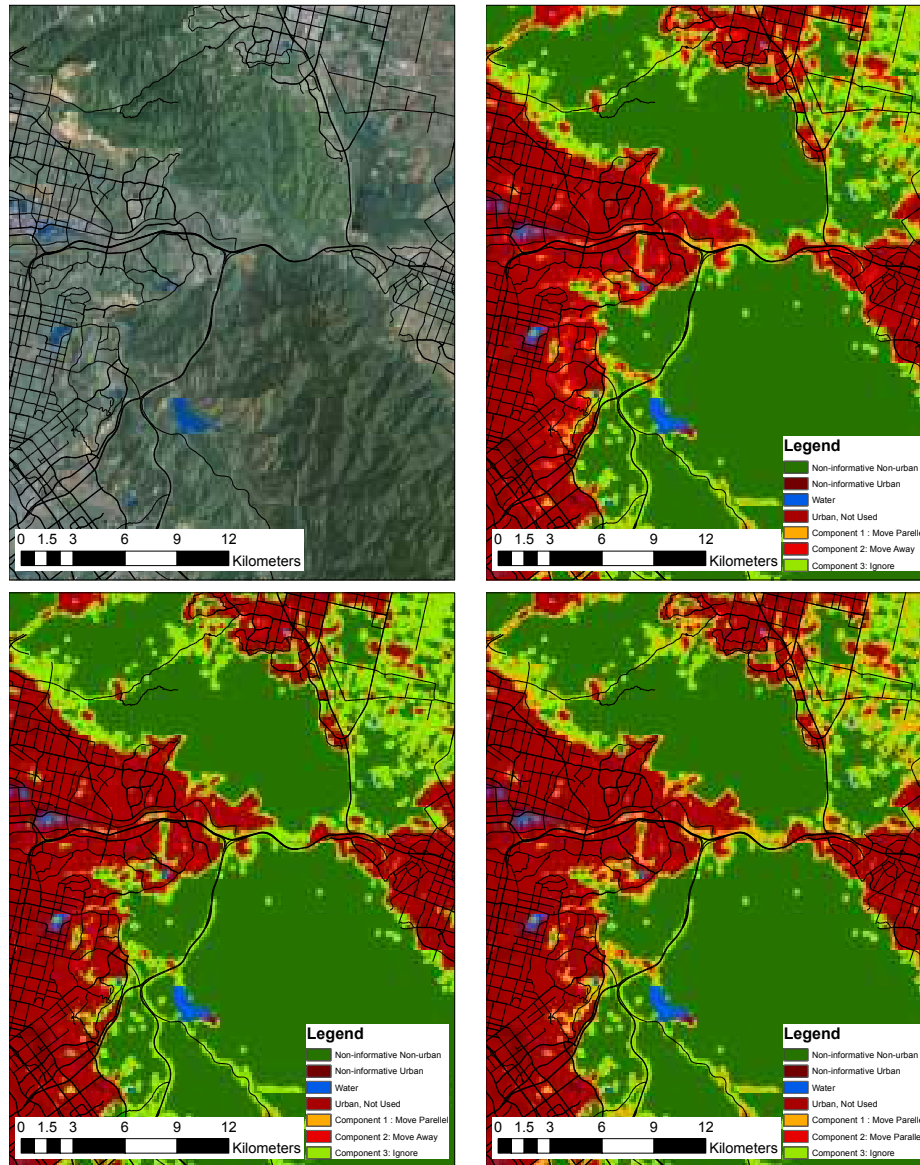


Figure D5: Imagery of the landscape (top left) and behavioral landscapes for bobcats LYRU1 (top right), LYRU2 (bottom left), and LYRU3 (bottom right). The landscape show water (blue, a physical barrier to movement), areas with a very high proportion of urban (dark red), areas where the amount of urbanization exceeds that observed for the bobcat (medium red), areas with a very low proportion of urban (dark green), and areas mapped to the most probable response component in the FMM. Major roads are shown in black. This area includes Coal Canyon, which connects the Santa Ana Mountains in the south the Chino Hills in the north. Note that the model accounts only for response to urbanization.

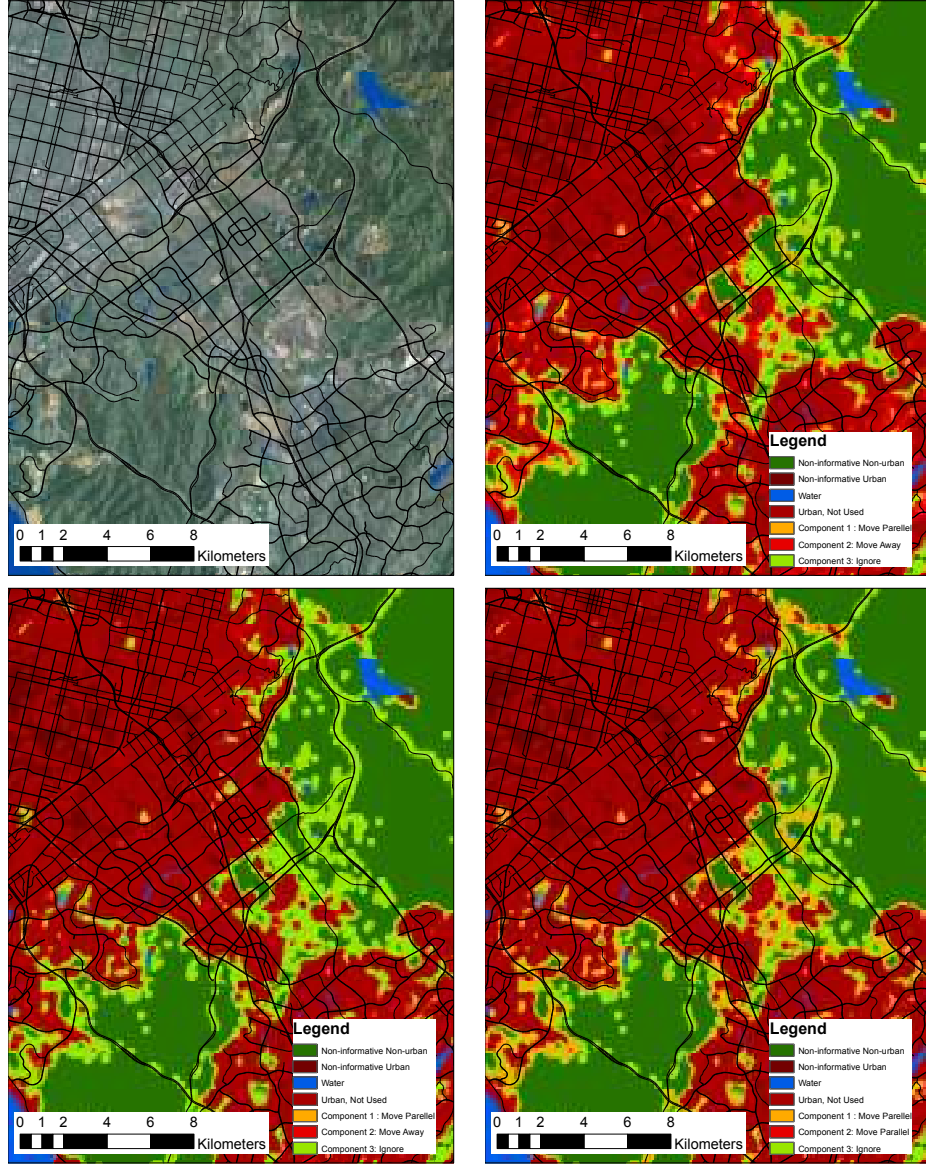


Figure D6: Imagery of the landscape (top left) and behavioral landscapes for bobcats LYRU1 (top right), LYRU2 (bottom left), and LYRU3 (bottom right). The landscape show water (blue, a physical barrier to movement), areas with a very high proportion of urban (dark red), areas where the amount of urbanization exceeds that observed for the bobcat (medium red), areas with a very low proportion of urban (dark green), and areas mapped to the most probable response component in the FMM. Major roads are shown in black. This area includes an area which connects the Santa Ana Mountains in the east to the San Joaquin Hills to the southwest. Note that the model accounts only for response to urbanization.

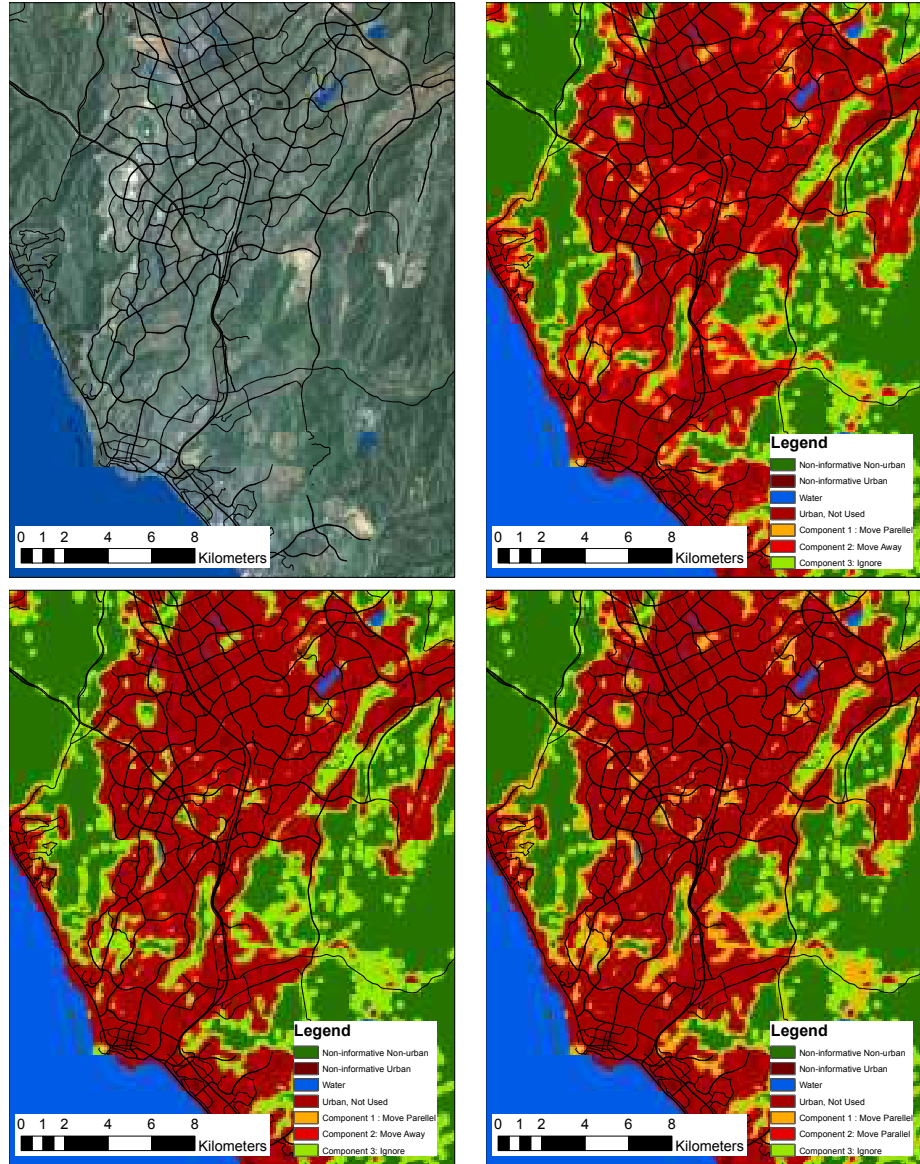


Figure D7: Imagery of the landscape (top left) and behavioral landscapes for bobcats LYRU1 (top right), LYRU2 (bottom left), and LYRU3 (bottom right). The landscape show water (blue, a physical barrier to movement), areas with a very high proportion of urban (dark red), areas where the amount of urbanization exceeds that observed for the bobcat (medium red), areas with a very low proportion of urban (dark green), and areas mapped to the most probable response component in the FMM. Major roads are shown in black. This area includes an area that connects the San Joaquin Hills in the west to the southern part of the the Santa Ana Mountains to the southeast. Note that the model accounts only for response to urbanization.