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Research Brief for Resource Managers

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Risky WUI Sprawl is Causing Permanent Chaparral Loss

Syphard, A.D., T.J. Brennan, and J.E. Keeley. 2018.Chaparral landscape conversion in southern California. Pp. 323-336 in, E.C. Underwood, H. Safford, N. Molinari, and J. Keeley, editors. Valuing Chaparral. Springer Series on Environmental Management, Springer.

California is sometimes called "America's suburb", an infamous title that has been hard won. As evidence, these authors offer us the creeping spatial and temporal patterns of housing growth from 1940 to the present in seven southern California counties (Fig.12.2). Such urban sprawl expansion, known among managers as the *wildland urban interface (WUI)*, eliminates chaparral by putting both low-density "interface WUI" and high-density "intermix WUI" directly in its place. After the initial construction, the sprawl continues to cause incremental chaparral degradation and loss over time, largely through the introduction of flammable housing developments, kindling-like non-native grasses, and human ignition sources.

The ecological and sociological consequences of chaparral loss to wildlife, to soil & water, to local temperatures, to carbon sequestration potential, and to human communities are outsized and insidious, somewhat invisible until we look back in time. For example, overlaid southern California maps from 1930 to the present give us an idea of the extent of the ecological loss that has already overtaken that region (Fig.12.6). With a projected 140% increase in the San Diego County population by 2050, those planners will be smart to consider building only compact and clustered housing in low fire-risk/low biodiversity zones for the future. Further, ignition

Management Implications

- Because the ecological and sociological consequences of chaparral loss are so significant, planners have to consider how to prepare for the 140% population increase anticipated for San Diego County by 2050.
- The safest new developments will be compact and clustered, on strategically located, low fire-risk and low biodiversity lands (which happen to be one and the same).
- Building construction, building design, building location, building density and defensible space (30m), can all be optimized for the safety of our human and wildlife communities.
- Ignition prevention efforts (e.g., burying power lines; limiting fireworks use, controlling invasive grasses along roadways, etc.) would also improve safety and reduce chaparral loss significantly.

prevention tactics like burying power lines could also be quite beneficial.

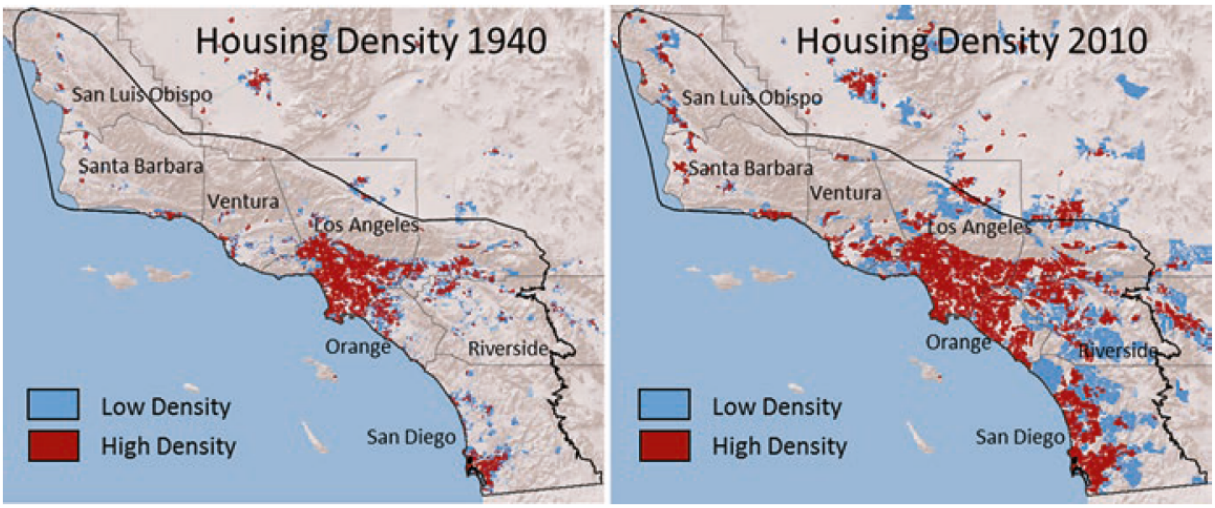
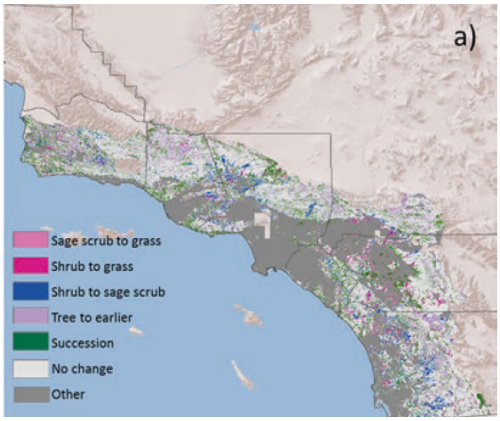
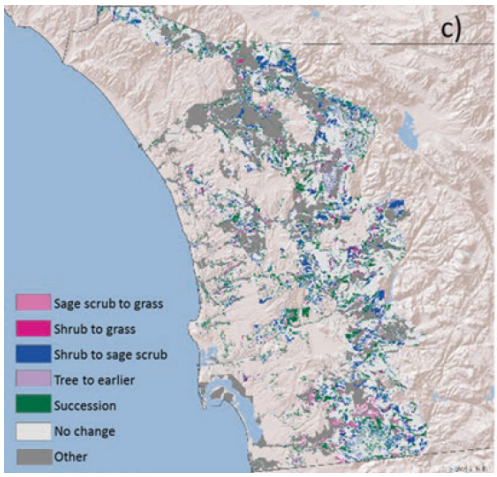


Fig. 12.2 Maps of low and medium-high housing density in 1940 and 2010 in the South Coast Ecoregion of southern California





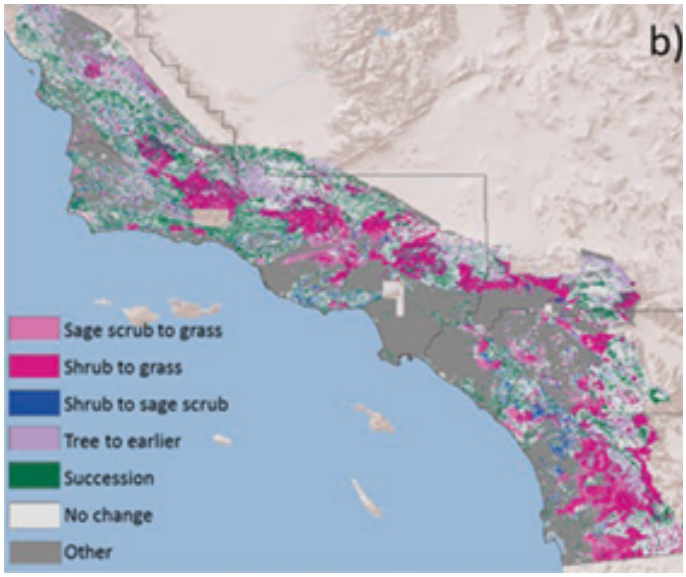


Fig. 12.6 Maps of vegetation type change from (**a**) the 1930s to 2002 (CalVeg), (**b**) the 1930s to 2013 (Landfire), and (**c**) the 1930s to 2012 (San Diego County map)