

URBAN MEDIATED CHANGES TO THE PATTERN OF BURN PROBABILITY ON THE CAPE PENINSULA

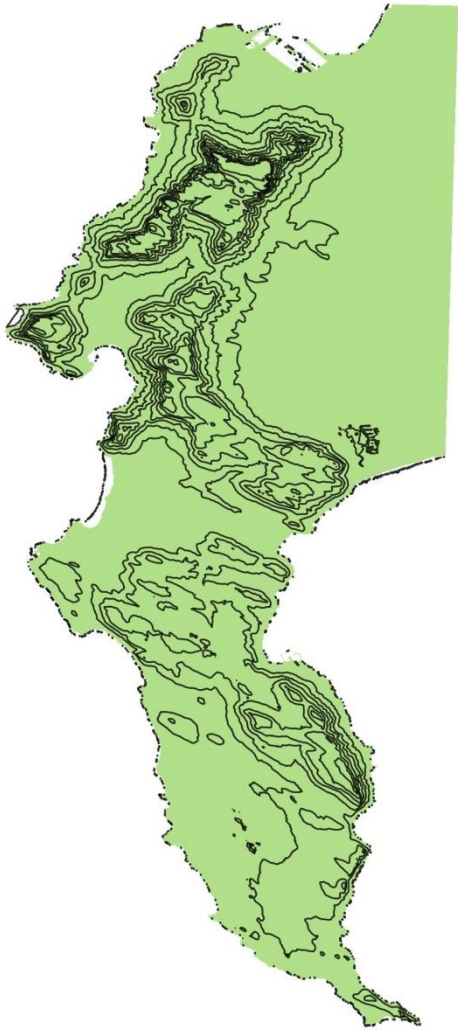
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URBANISATION ON THE PENINSULA

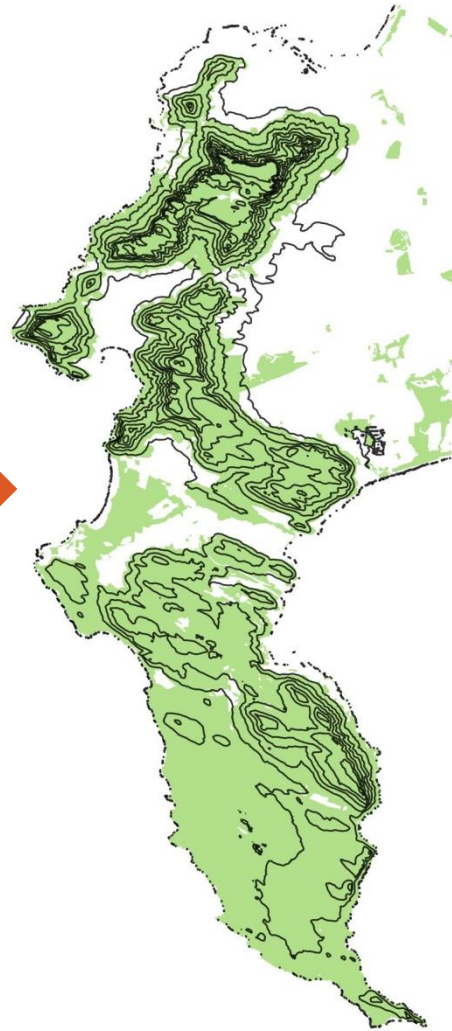
- Fire dependent vegetation dominated by summer wildfire with strong SE winds
- Rapid urbanisation & fragmentation
- Documented change in fire regime (Forsyth & Van Wilgen 2007)



What effect does transformation have on the movement of fire and the relative probability of a location burning (“burn probability”)?



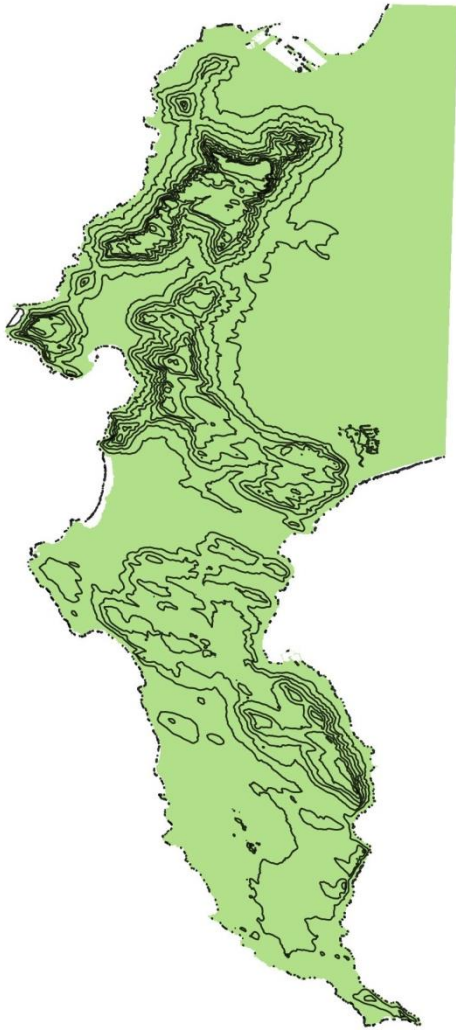
Pre-transformed



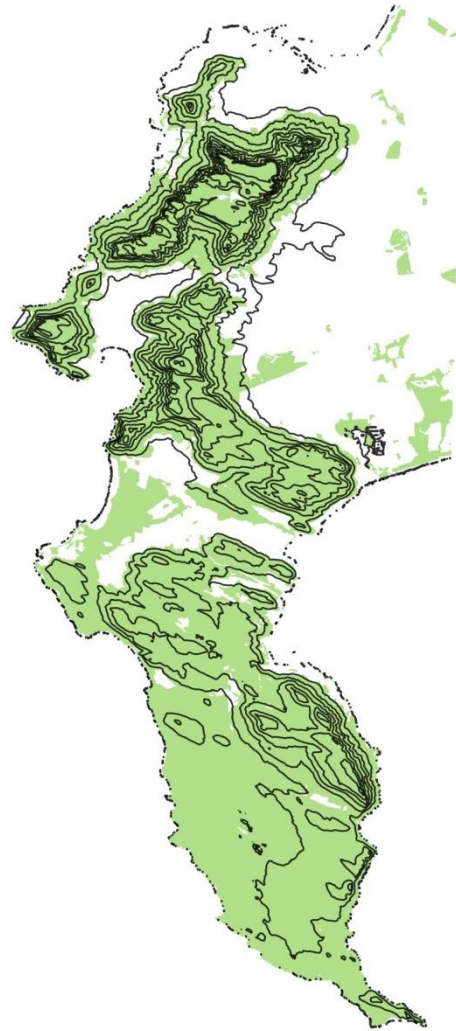
Transformed



HOW?



Pre-transformed



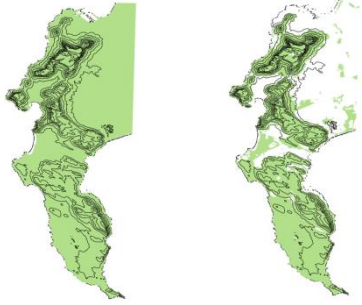
Transformed

**Create
Simulation
landscapes:**

- Topography
- Fuel Model
- Urban outline

**Create set of
100 weather
scenarios
based on fire
records**

Landscapes



(Finney, 2004)

Weather Scenarios

- Simulates and propagates 1000's of random fires across given landscape
- Calculates fraction of fires encountered at each pixel compared to the total number of fires generated – 'Burn Probability'

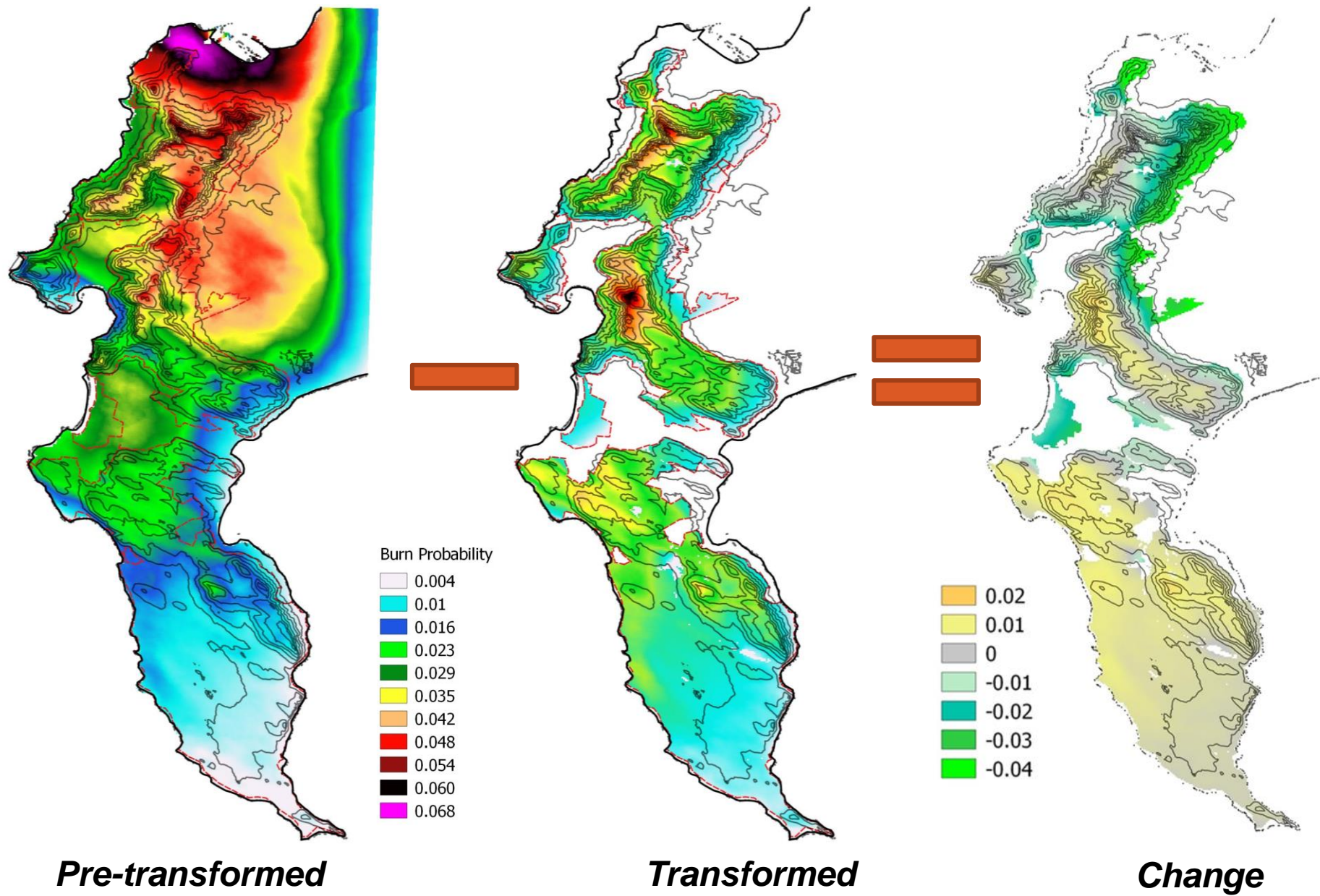
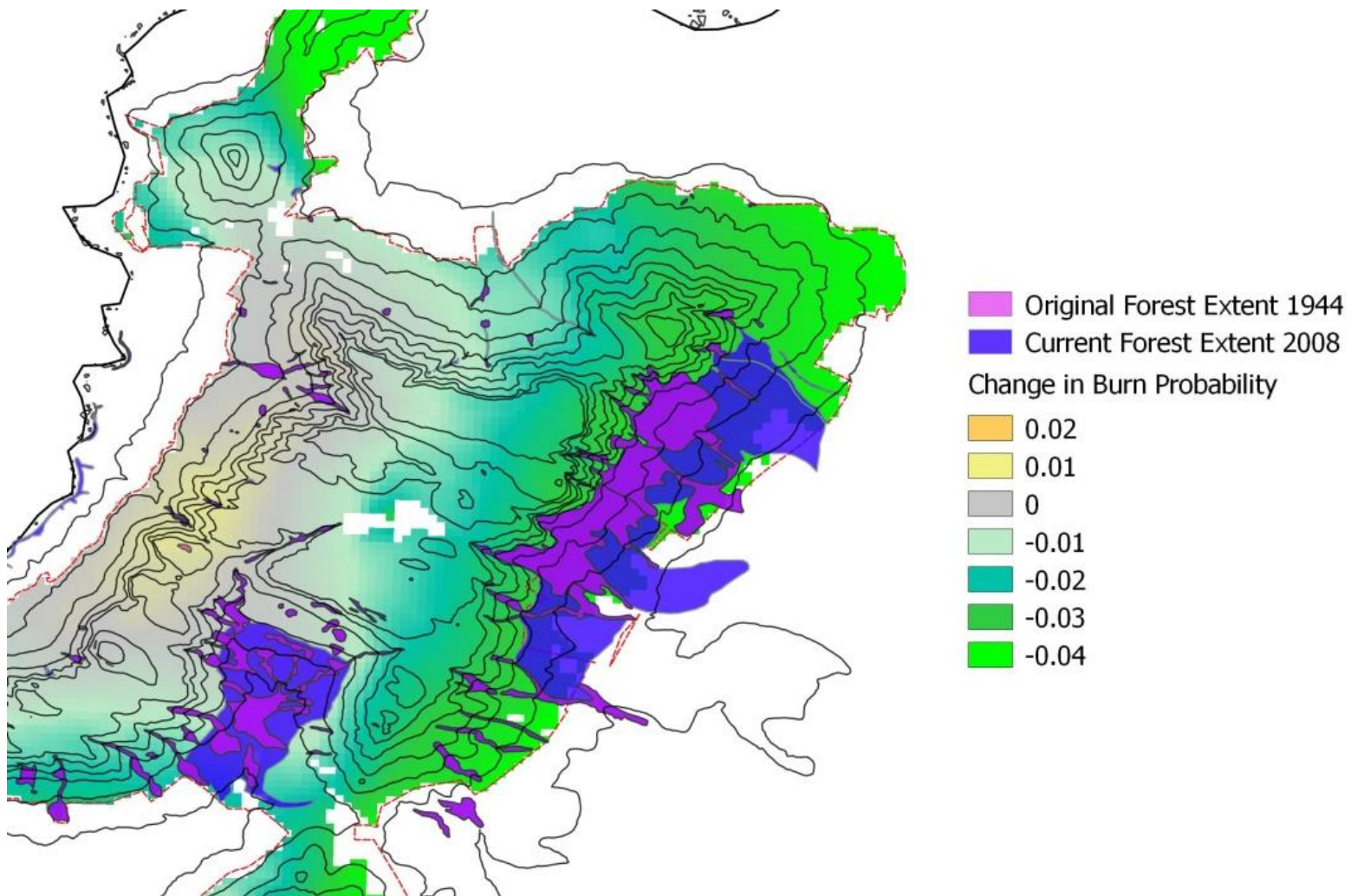


Figure 1: Burn probability scenarios for transformed and pre transformed landscapes, and the resultant difference in burn probability between landscape treatments



(Poulson & Hoffman, 2015)

Figure 2: Change in burn probability for northern Peninsula Mountain Chain in contrast to changes in forest distribution over the last 50 years

CONCLUSIONS:

- Presence of urban development in fire dependent systems has potentially large impacts on fire occurrence patterns
- Observable impacts on fynbos/forest boundary, which could inform management strategy

