

# Reconciling inconsistencies of maps that were created with different methods for 1999 and 2005



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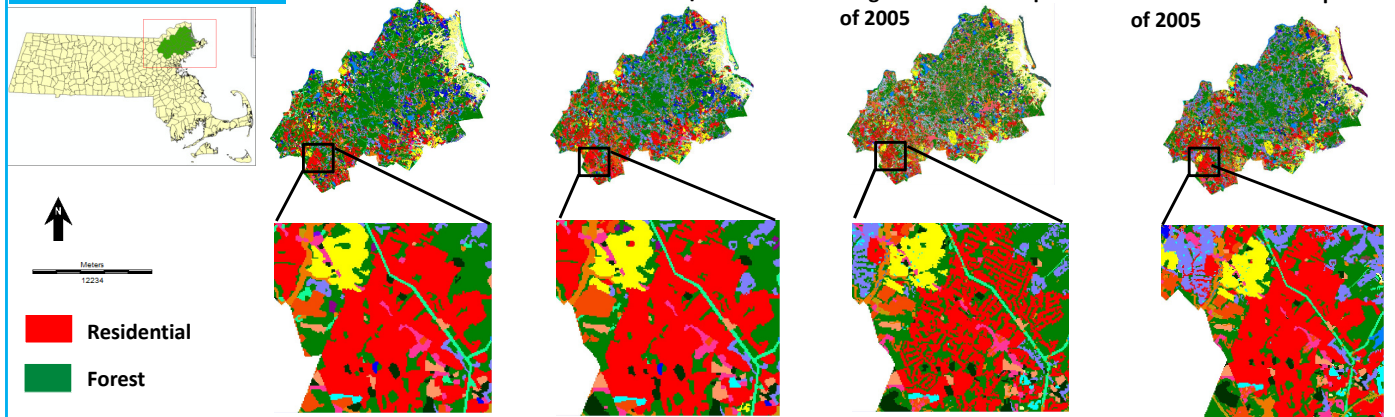


## INTRODUCTION

This research examine land cover change over time by using maps of Massachusetts for 1971, 1999 and 2005. Manual interpretation of aerial photography produced the maps of 1971 and 1999, but a different automated technology produced the map of 2005. Therefore, a simple overlay between the map of 1999 and 2005 reveals both the difference of land change and in mapping.

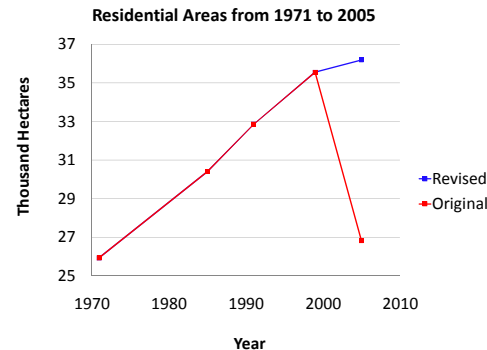
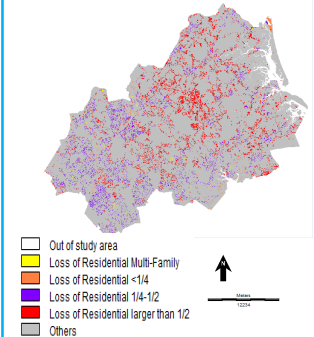
Our method attempts to separate these two confounding factors to produce an estimate of land change and an estimate of the difference due to map production methods.

## STUDY AREA: PLUM ISLAND



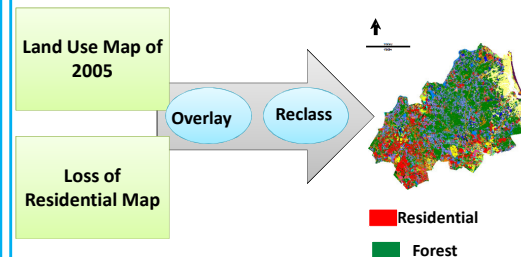
## APPARENT LOSS OF RESIDENTIAL

Original Loss of Residential from 1999 to 2005



## REVISED METHOD

From 1971 to 1999, only 11 pixels in the study area transitioned from residential to forest. So one method to revise the map of 2005 is assume that residential in 1999 remains residential in 2005.



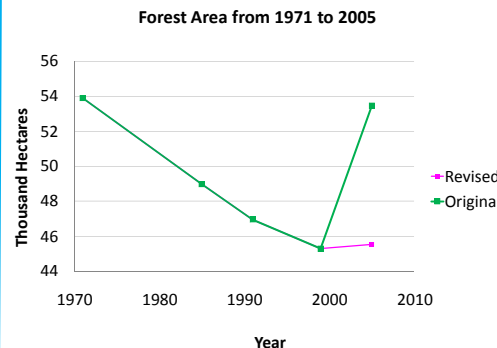
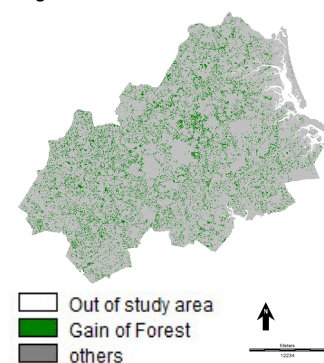
## CONCLUSION

The 2005 land cover map has obvious inconsistency compared with previous maps, because the automated technology classified trees in residential areas as forest. This inconsistency accounts for about 35% of the original difference between 1999 and 2005.

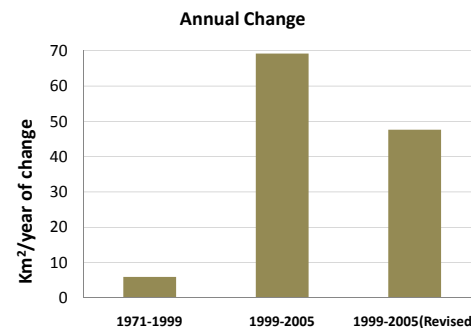
After revising the forest area is still a little increasing and the annual change is about 7 times of the first time interval. So there probably are additional inconsistencies.

## FOREST AREA

Original Gain of Forest from 1999 to 2005



## LANDUSE CHANGE FROM 1971 - 2005



## ACKNOWLEDGEMENT

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