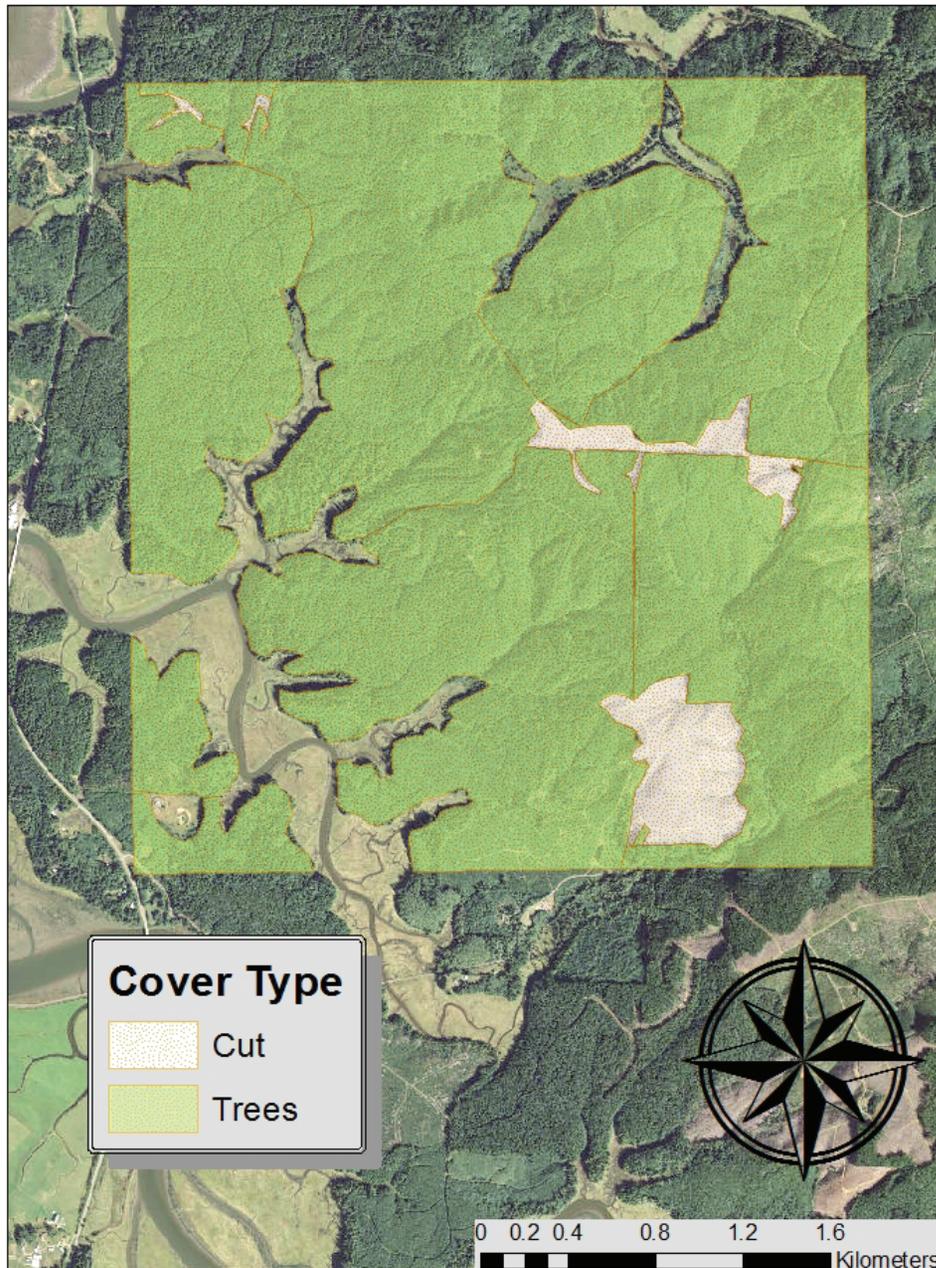


Land Cover Change and Forestry Activity in Willapa Bay, WA

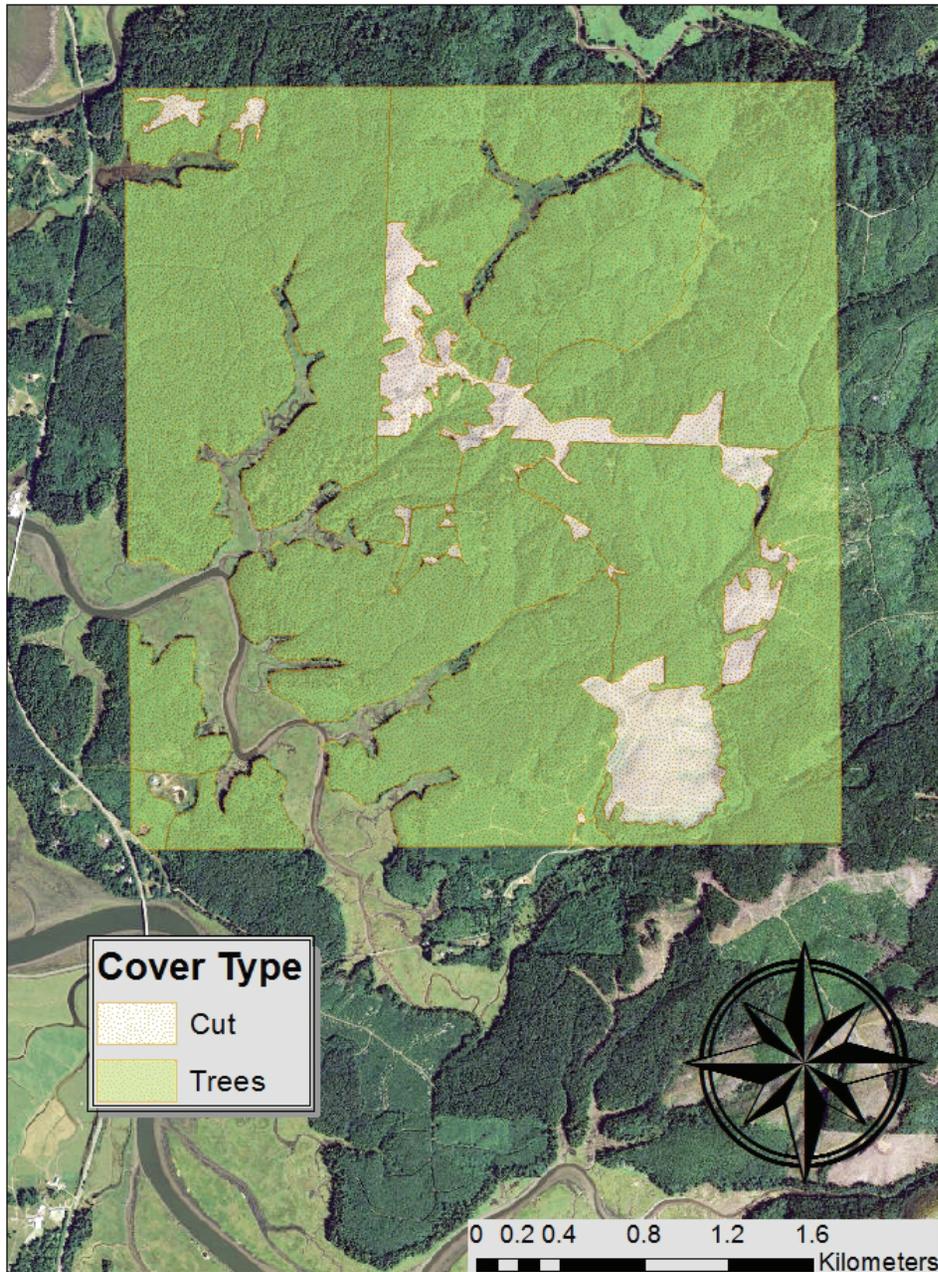
Aaron Fellows

2009 Land Cover

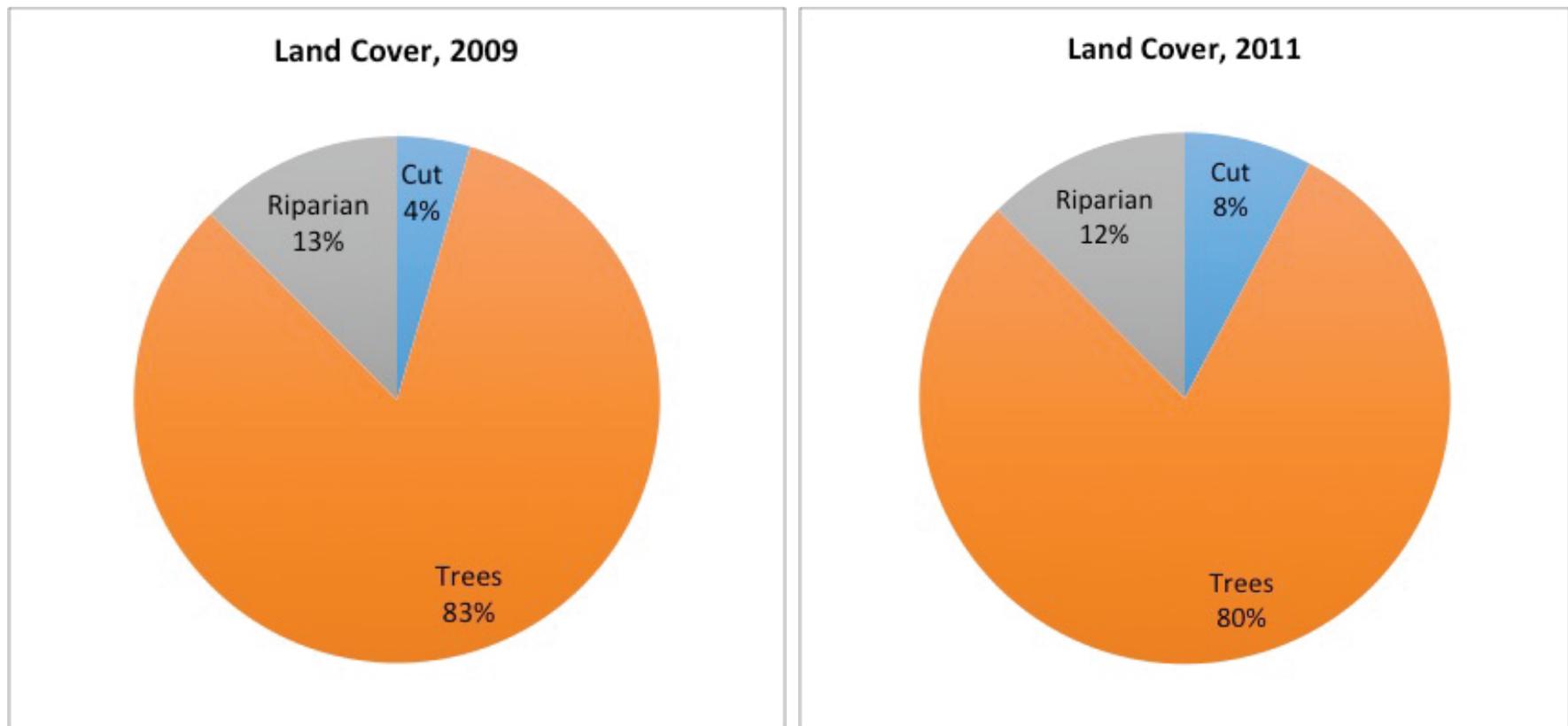


- Sample area selected from forested land east of Willapa Bay
- Historic logging activity in this area
- Mixture of different-aged patches of tree growth
- Spatial analysis differentiates between trees (majority of visible area is forested) and cuts (majority of visible area is soil). Riparian areas were not considered.

2011 Land Cover



- Between 2009 and 2011, more land is classified as cut
- Some areas of cut or riparian zone become forested enough to be classified as trees
- Although less than 2009, area is still predominantly forested.
- The largest cut (in the SE corner of the sampled area) displays less change than smaller cut areas.



The dynamics of cover change—here, 100% of the sampled area is classified into one of three categories (where riparian is all area not previously categorized as trees or cut, as the only areas that did not fall into these categories were tributary wetlands). Between 2009 and 2011, more trees were cut than grew back, and a small amount of riparian land became forested. It is also possible that this reported riparian change is due to the imaging at different tidal levels between the two years.

Discussion

- From this sample, it appears that the forest surrounding Willapa Bay is being logged faster than it regrows, with the percentage of cut area doubling between 2009 and 2011.
- However, the amount of logged area remains small relative to the total amount of forest, and does not appear to be at risk of depletion in the near future.
- There may also be bias in the selection of the sample area, as this analysis was done as part of an assignment to analyze cover change. The sample area may have been selected with an eye to where change clearly existed.
- The accuracy of the imaging is another source of potential bias: although the tidal level does not have a huge influence on forest cover, it could affect the amount of area perceived to be riparian zone.

Future Improvements

To improve the results of this analysis, it would be necessary to sample a larger area in a more random fashion. For instance, given more time and a larger research budget, it would have been advantageous to be able to classify the entirety of the given orthoimages, or at least their terrestrial components. This would remove any present selection bias from these results.

It could also be useful to classify areas of forest based on their apparent age—recent growth compared to “old” stands (not in the sense of true old growth, just older than the young trees). However, this would require a higher resolution image if the ages of trees were to be classified with any useful degree of accuracy.

Finally, if it were possible to analyze images from more than two years, changing trends over time might become more apparent. Additionally, this would make it easier to account for tidal influence, as the riparian areas would display more of an average level over time periods.