

Connecting Spotted Owl Habitat

Introduction

The Spotted Owl (SO) is an endangered species that is involved in a controversial battle with loggers in Washington State. Despite having habitat ranging from California up to Victoria, BS, the Spotted Owl's habitat is continually being destroyed. SO ideal habitat is comprised of old growth conifer forests that are ideal in the timber industry.

The SO was chosen for these reasons. This analysis is comprised of four main objectives : potential habitat protection, areas to sacrifice, potential corridors, and fragmentation of habitat in Washington State. In order to accomplish this, there were five types of data needed: Forest, roads/railroads, city and urban growth areas, SO habitat, and land use and ownership.

Methods

In order to evaluate the four objectives listed above, a grid system needed to be created so that the raster calculator could be utilized. The first steps towards this was the shapefiles obtained were clipped to a Washington State base map, which can be seen in FIGURE 1 and 2. A multiple ring buffer was placed around the roads and cities in order to buffer against loud noises that the SO avoids. After, a classification system was put into place based on numbers found during research. The shapefiles were then converted into raster's using a cell size of 30.

The final raster created, shown in FIGURE 3, was initially shown in a red to green scale but then converted into a dark to light green scale to show the habitat suitability. Finally, existing habitat, cities, and roads were placed over the raster for the analysis.

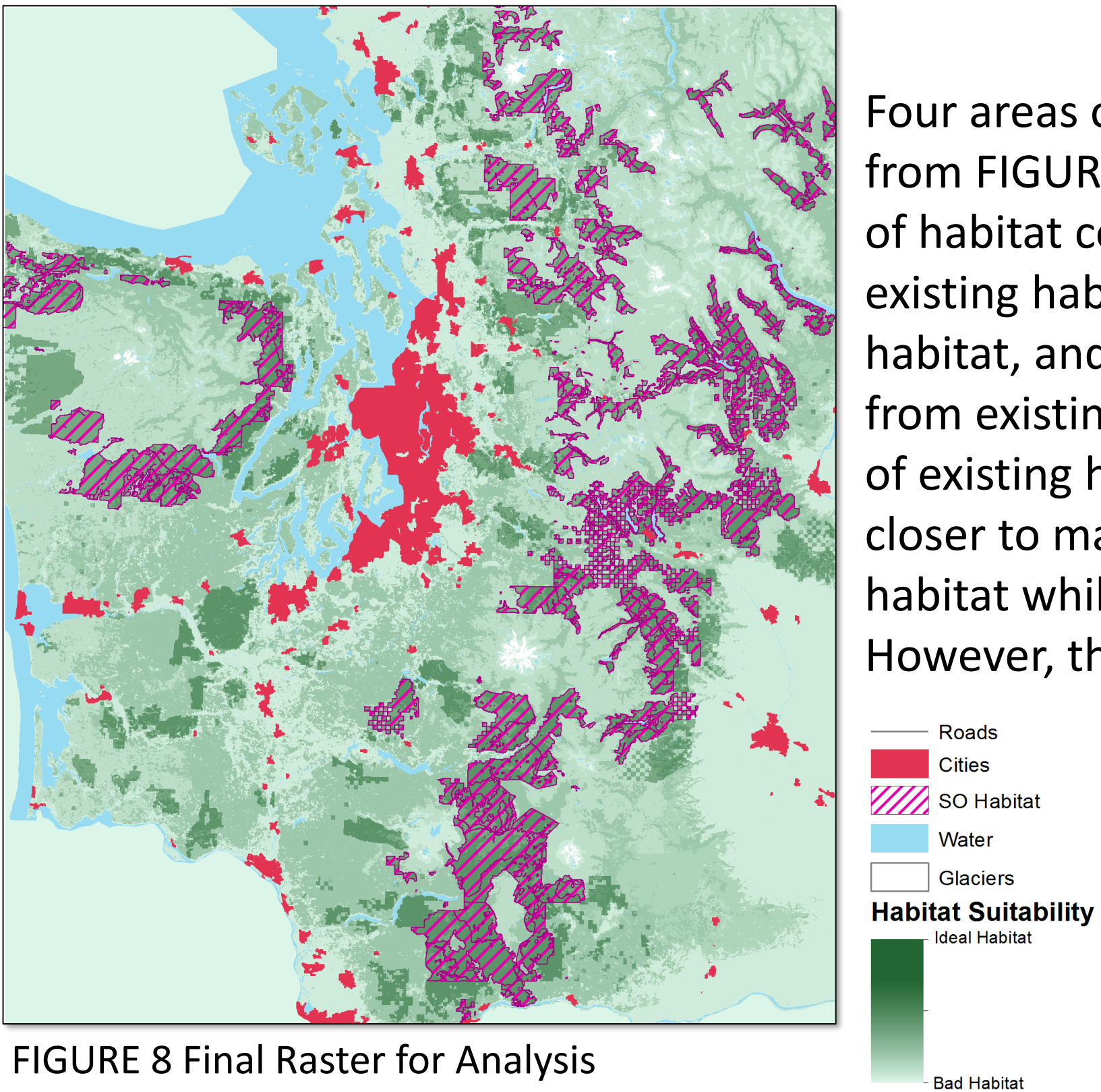
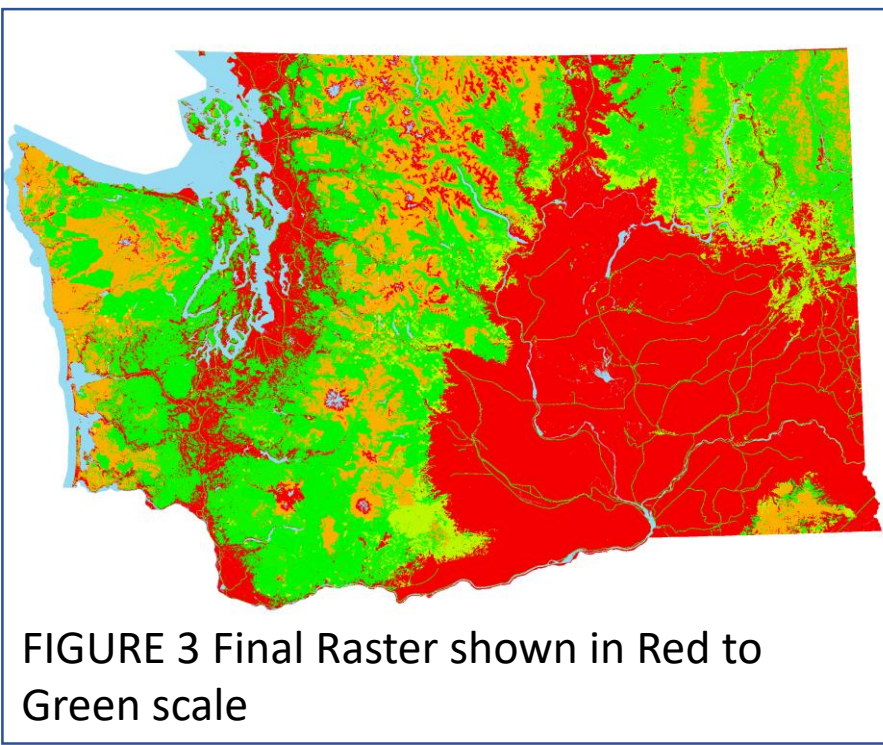
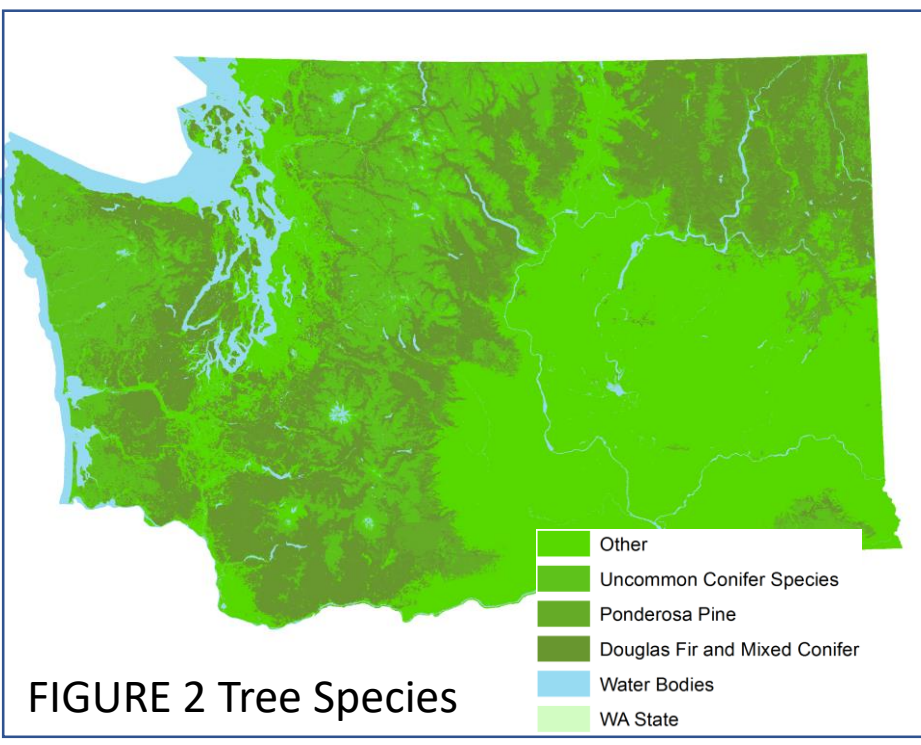
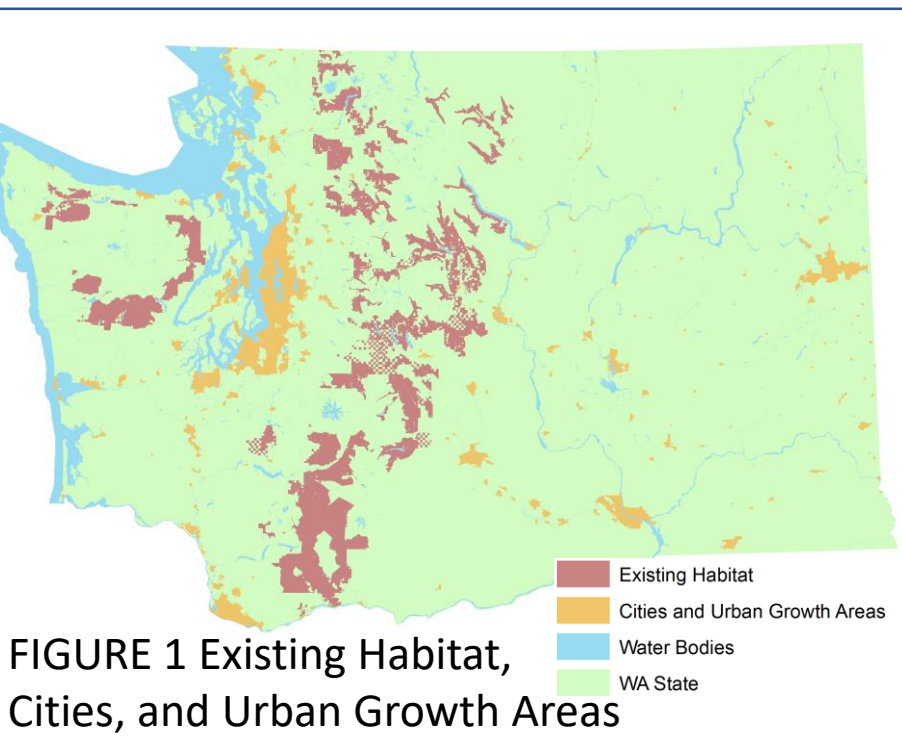


FIGURE 8 Final Raster for Analysis

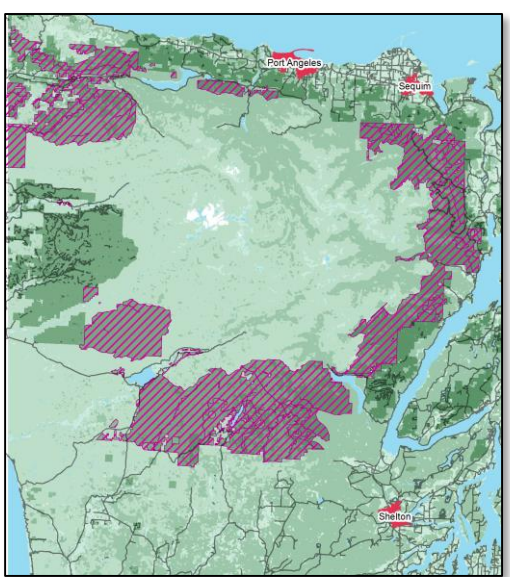


FIGURE 4 Area for Analysis 1



FIGURE 5 Area for Analysis 2

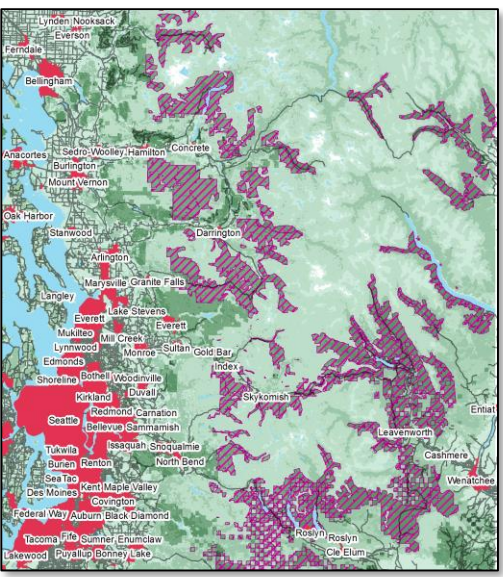


FIGURE 6 Area for Analysis 3

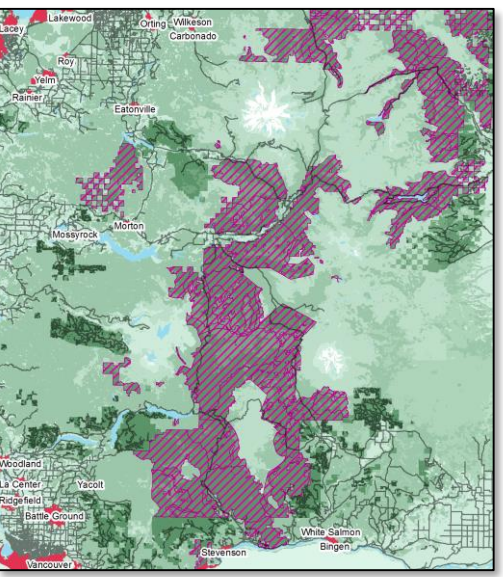


FIGURE 7 Area for Analysis 4

Analysis

Four areas of analysis were chosen based on areas of better habitat suitability from FIGURE 8, as seen in FIGURES 4-7. The area in FIGURE 4 has a large area of habitat comprised of 34,523 hectares that would offer a corridor between existing habitat. The area in FIGURE 5 has the smallest amount of suitable habitat, and does not contain any existing habitat. This area is fragmented from existing habitat due to highways and cities. FIGURE 6 has several pockets of existing habitat with some potential habitat nearby, however it puts habitat closer to major cities. The area in FIGURE 7 has the most continual existing habitat while also showing the highest amount of suitable habitat in hectares. However, the numbers are not completely accurate as the land use boundaries do not take into account existing owl habitat. FIGURE 9 evaluates the amount of habitat, in acres, for each of the classifications. As shown, there is higher amounts of unsuitable habitat than ideal habitat, leading further to the need of protecting what little suitable habitat is left.

Discussion

There is a limited amount of forest that could currently be preserved for the Spotted Owl. This shows that while it is easy to destroy habitat, it is much harder to bring back habitat for endangered species. The reality of exchanging existing habitat for potential habitat is not possible, however this analysis does show the need for a concentration around the area in FIGURE 5 to attempt to find a way to create corridors between it and the areas in FIGURE's 6 and 7. Further analysis on the types of road and usage does need to occur for potential habitat areas for the protection of this land for the Spotted Owl.

Acknowledgements & References

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