Disturbance and Recovery Trends: Beetle Outbreak followed by Wildfire
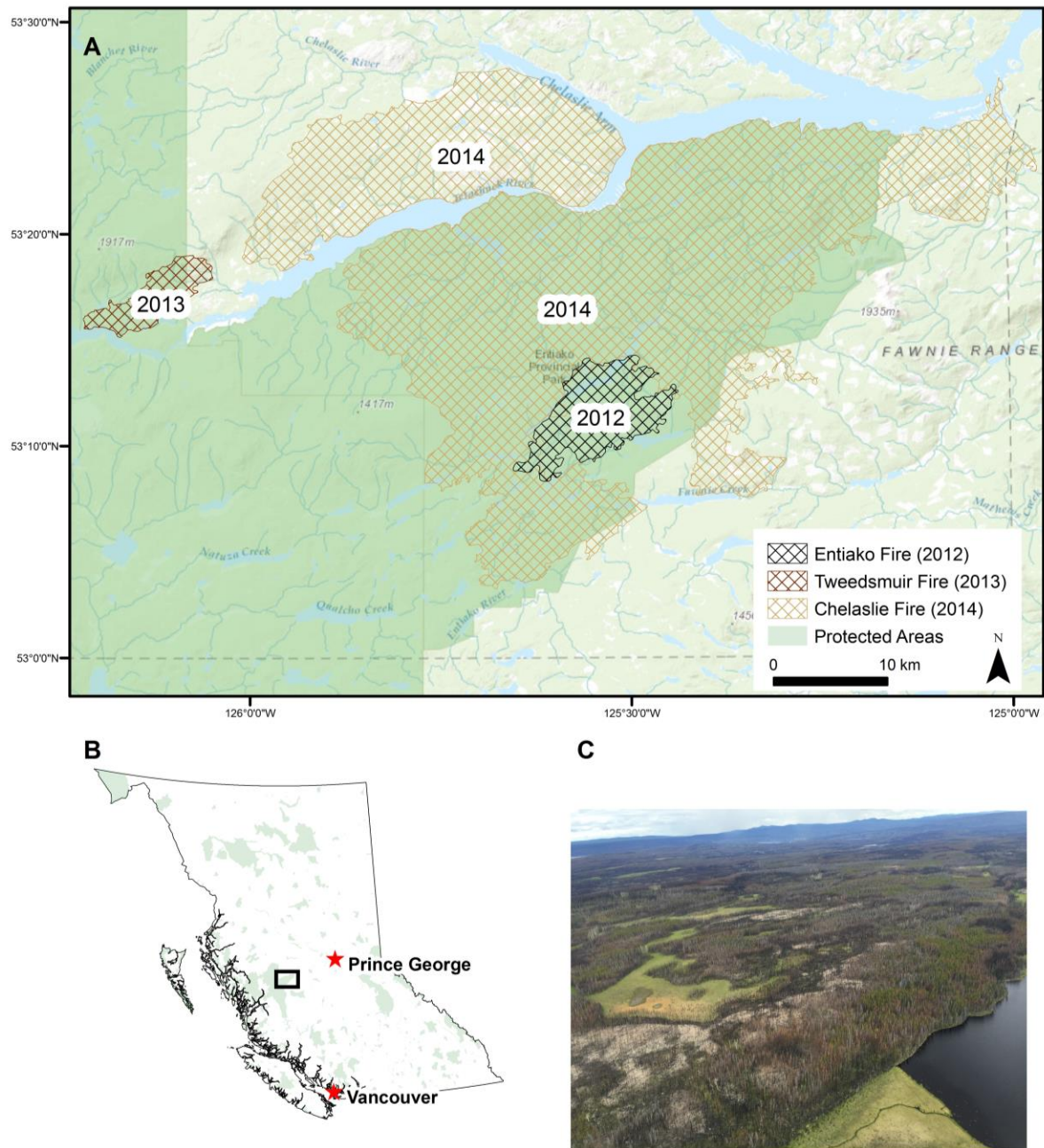
Figures

Figure 1. (A) Fire perimeters for three fires that burned in 2012 (Entiako Fire; 7,459 ha), 2013 (Tweedsmuir (R10252) Fire; 3,354 ha), and 2014 (Chelaslie Fire; 133,000 ha). Darker green distinguish provincial parks that are managed as wilderness. (B) The province of British Columbia with the location of study area outlined by inset box. (C) Aerial photograph of postfire landscape of Chelaslie Fire, taken two years postfire.
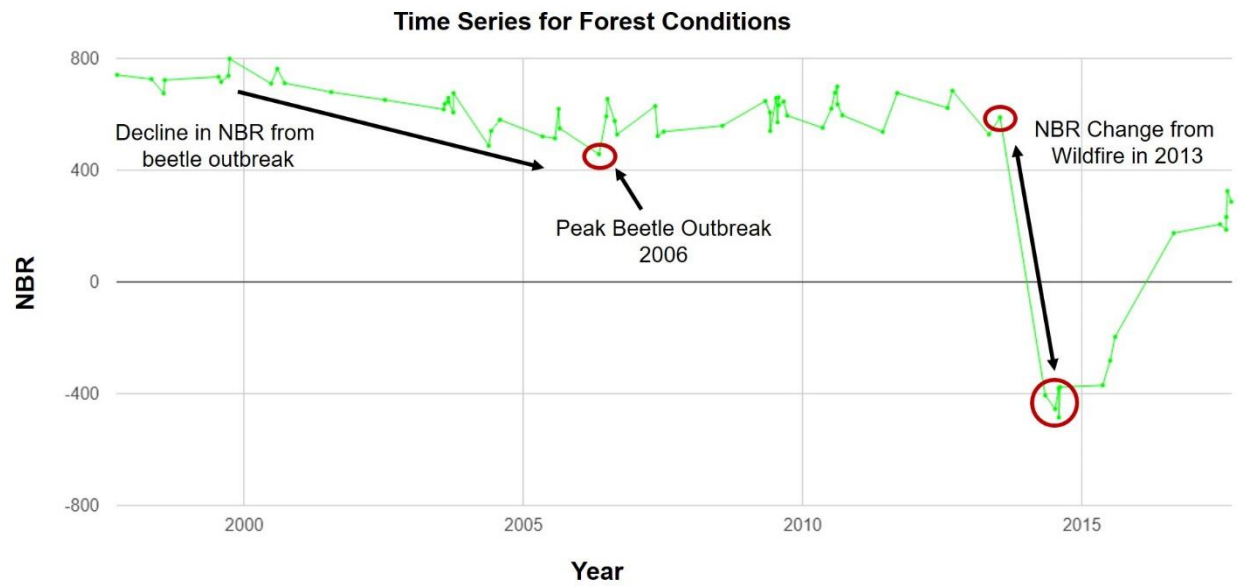
Figure 2. Landsat time Series for forest condition within the fire perimeter of Fire R10252 that burned in September of 2013.
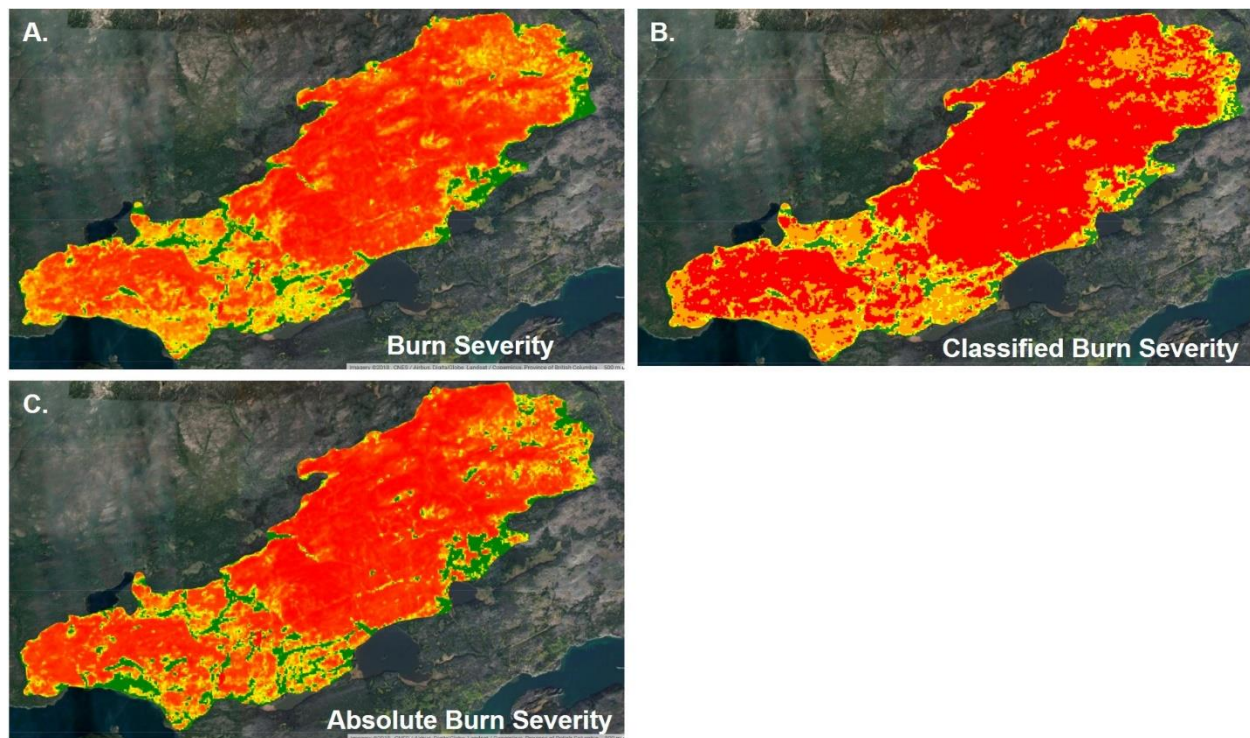
Figure 3. Three-panel graphic includes Burn Severity (A), Classified Burn Severity (B), and Absolute Burn Severity (C). All maps are categorized along the same scale with green as unburned, yellow as low severity, orange as moderate severity, red as high severity. The burn severity map (A) used a one-year prefire and one-year postfire image. The absolute burn severity map (C) used a one-year preoutbreak and one-year postfire image. Note the subtle differences where the absolute burn severity (C) experienced high severity, but some of these areas are moderate severity in the burn severity map (A). The classified burn severity map (B) was classified from the burn severity map (A) but has not been validated do to a lack of data.
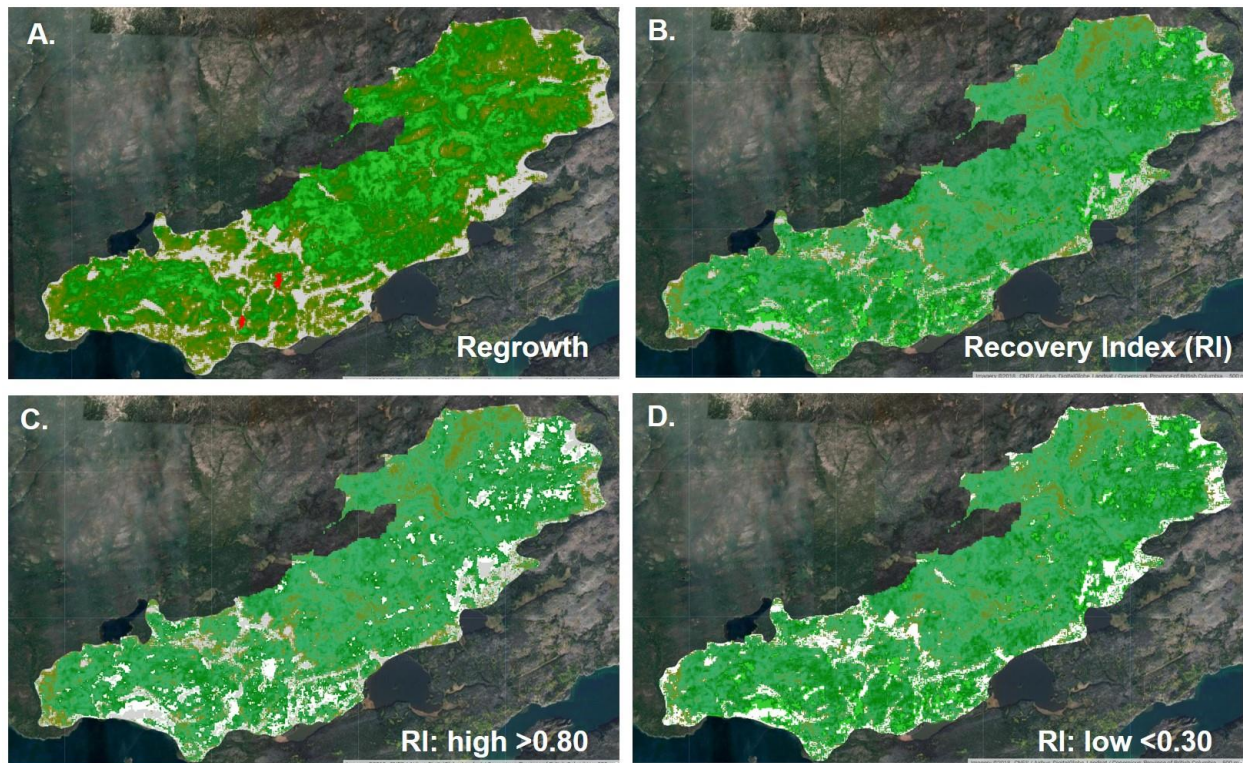
Figure 4. Four-panel graphic includes regrowth (A), recovery index (B), RI with high values in white (C), and RI with low values in white (D). The regrowth map (A) is categorized with gray as unchanged, brown/green as low regrowth, green as moderate regrowth and bright green as high regrowth. The recovery index (B) was categorized with gray values as unchanged, brown values as low regrowth, pale green as moderate-low regrowth, green as moderate-high regrowth, and bright green as high regrowth. Note the mosaic of regrowth and RI indicating variable recovery across the landscape.
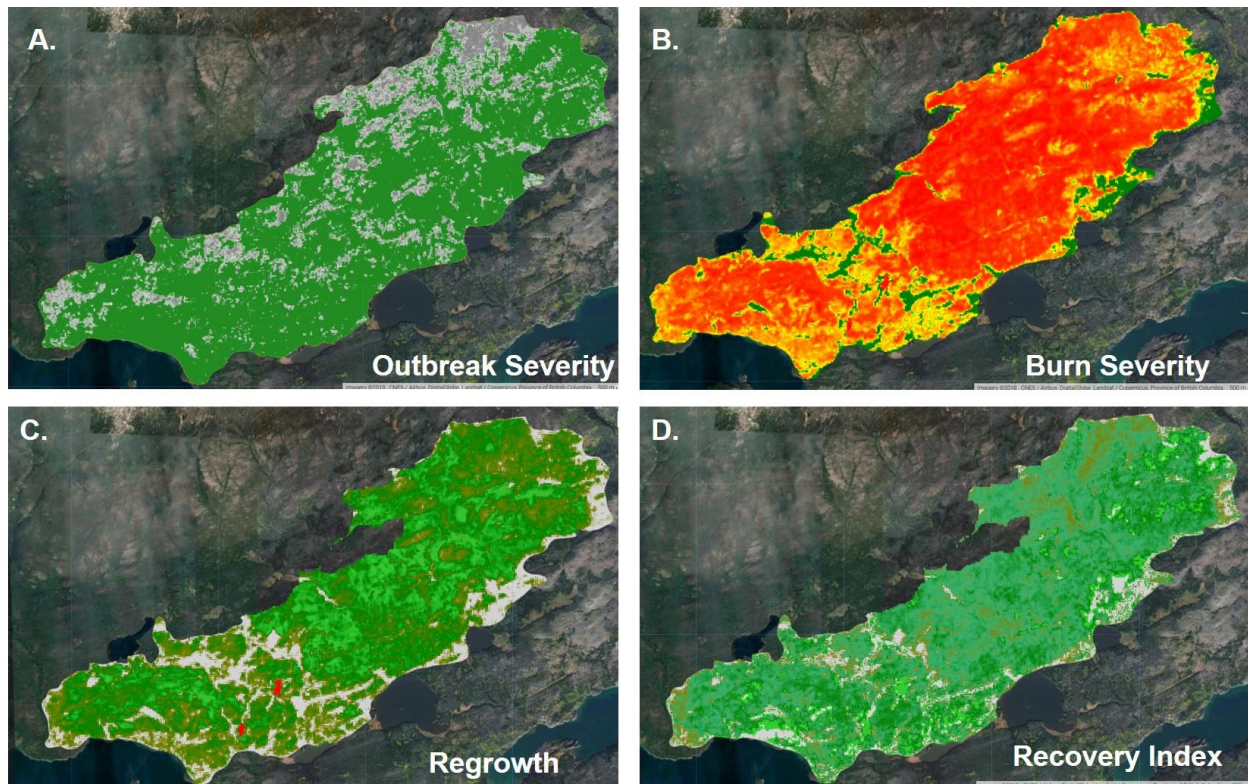
Figure 5. Four-panel graphic includes outbreak severity (A), burn severity (B), regrowth (C), and recovery index (D). Outbreak severity increases with darkening of the gray and green is unaffected A). Burn severity (B) is categorized with green as unburned, yellow as low severity, orange as moderate severity, red as high severity. The regrowth map (C) is categorized with gray as unchanged, brown/green as low regrowth, green as moderate regrowth and bright green as high regrowth. The recovery index (D) is categorized with gray values as unchanged, brown values as low regrowth, pale green as moderate-low regrowth, green as moderate-high regrowth, and bright green as high regrowth. In examining these four mosaics side by side, there are no distinct trends in terms of singular or combined disturbance patterns influencing regrowth patterns.