



*Supplementary Figure 1.* Visual fields of Subject MD1 with macular degeneration (cone-rod dystrophy). Visual acuity 20/330 in each eye. Note that the subject fixates the center of the screen with his Preferred Retinal Locus (PRL), not fovea. The black lines encircle scotomatous areas of the visual field for each eye where the subject did not report seeing the 6 mm targets as they were moved from the scotoma out. The disease-caused scotomata are so large horizontally that they fuse with the physiological blind spots. In a normally sighted subject with the fovea at the center of the display, the physiological blind spots would fall at the ellipses marked with dotted gray lines. It is apparent that the PRL is below the scotomata, and not directly adjacent to the edge of the scotomata. This was confirmed with SLO static perimetry that was also used to determine the eccentricity from the foveal position to the PRL, 13.5 degrees for the right eye and 12.5 degrees for the left eye. This subject's scotomata were fairly symmetric and therefore he had both eyes open during fMRI scanning in the first experiment.