



Additional file 4 Representative photographs of the chestnut oak (*Quercus montana* Willd.) forest with black gum (*Nyssa sylvatica* Marshall) midstory at our fire history study sites at Catoctin Mountain Park, Maryland, USA, in 2016. The forest had not burned since 1951, leading to (A) a closed forest canopy with (B) a shaded understory with little plant diversity. Mountain laurels (*Kalmia latifolia* L.) over 3 m tall and sparse blueberry (*Vaccinium* L.) and black huckleberry (*Gaylussacia baccata* [Wangenh.] K. Koch) speak to the long-term absence of fire at the site. Note the deer trail leading through the middle of (C) and the absence of tree seedlings and saplings in (B) and (C). Photo credits: L. Howard.