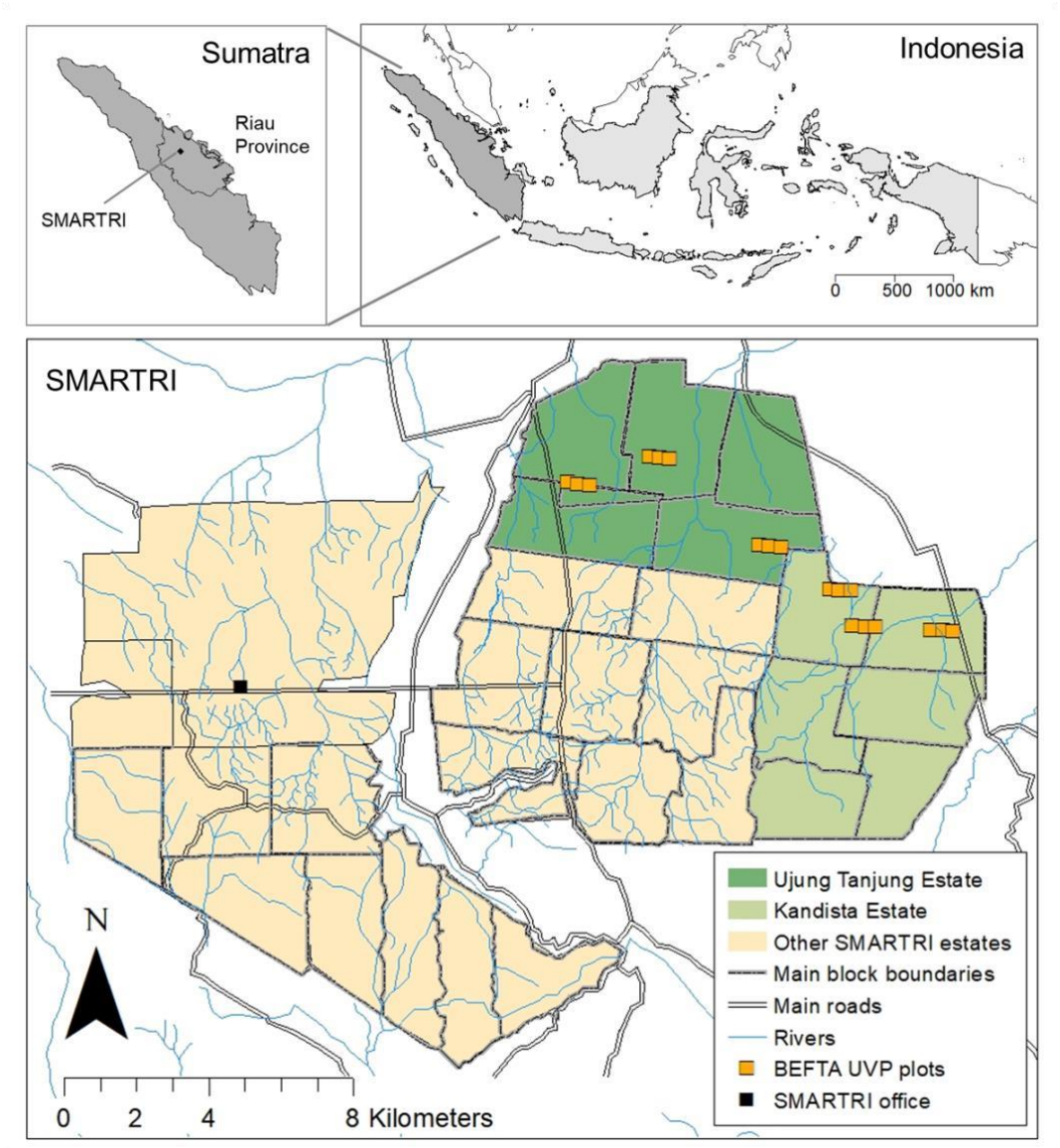
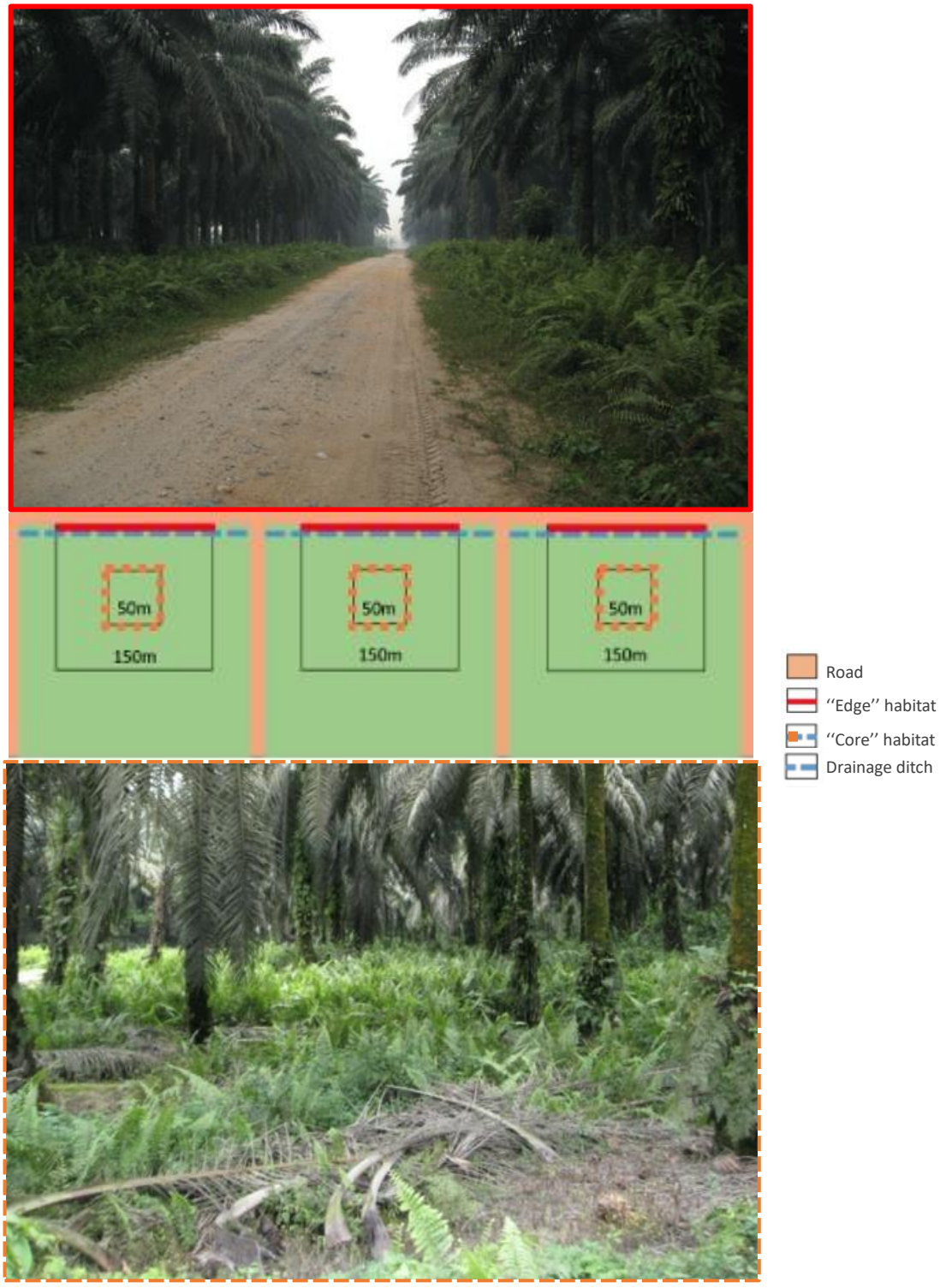
Supplementary Information

Supplementary Information 1: Maps showing the location of the BEFTA Understory Vegetation Project (BEFTA UVP) plots where surveys took place



SI1: Maps showing the location of the BEFTA Understory Vegetation Project (BEFTA UVP) plots within mature oil palm estates receiving management advice from Sinar Mas Agro Resources and Technology Research Institute (SMARTRI), within Sumatra, and within Indonesia. Indonesia and Sumatra maps were drawn using library "maps" in R statistical package (Brownrigg, 2016; R Core Team, 2017). The SMARTRI map was constructed using ArcMap 10.5.1 GIS Software (Environmental Systems Research Institute (ESRI), 2017), with reference to maps produced by Sinar Mas. This figure is reproduced, with the permission of the authors, from Luke et al., (2019).

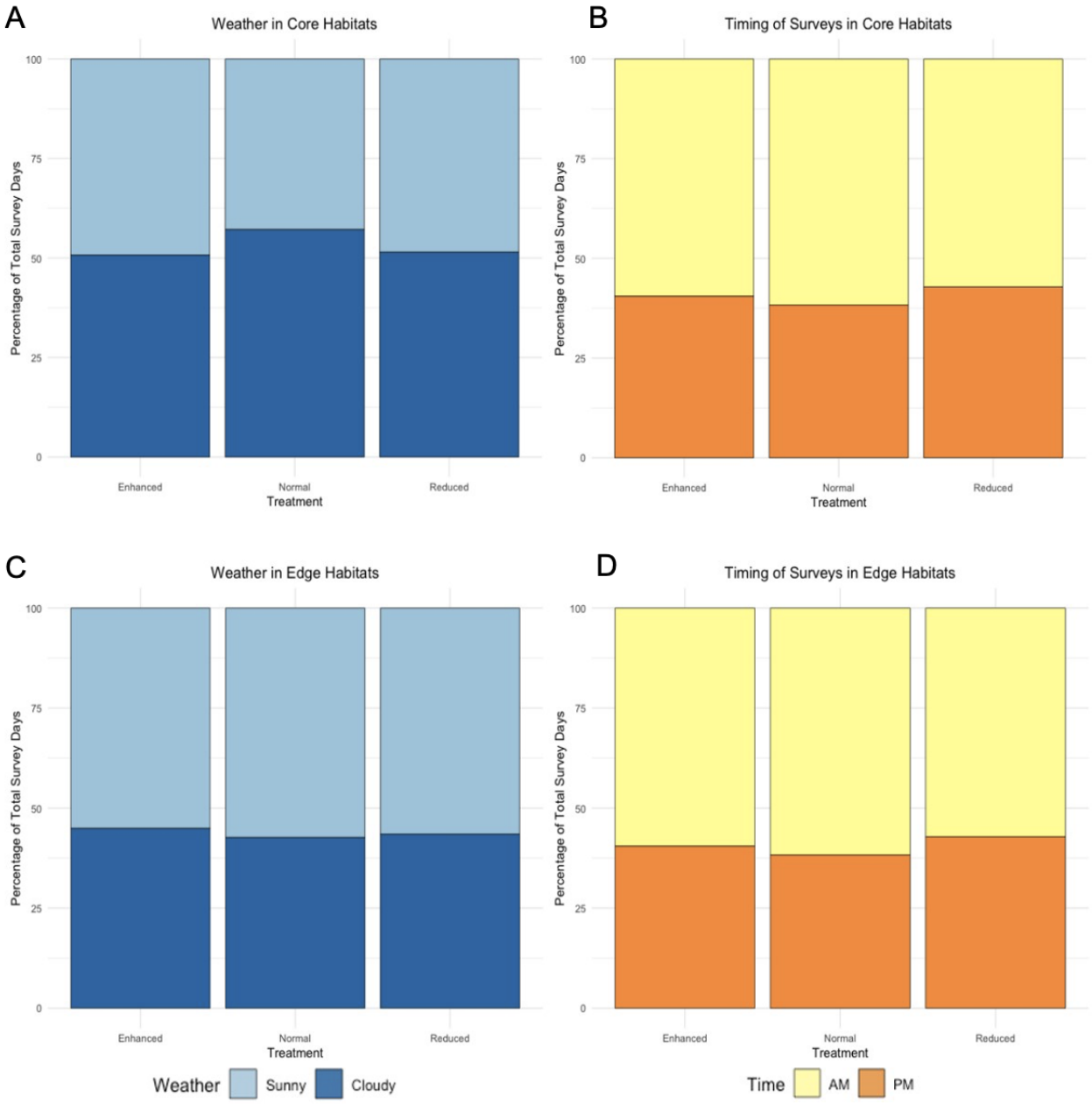
Supplementary Information 2: Schematic of the BEFTA Understory Vegetation Project and transects where surveys took place



SI2: Schematic showing the design of the BEFTA Understory Vegetation Project. The figure represents a triplet of three plots located beside a road lined by a drainage ditch, and with roads running through the spaces between

plots. Drainage ditches are common along roadsides within our study plantations. The red line along the edge of each plot, in between the road and the drainage ditch, shows the location of the Edge microhabitat transect that was surveyed in this study. Each plot has a core 50 x 50 m area, the perimeter of which served as the Core microhabitat transect surveyed in this study. This 50 x 50 m area is located within a larger region of 150 x 150 m which received the same understory management treatment, providing a 50 m buffer on each side. The triplet design is replicated six times across the SMARTRI landscape, with three triplets located in Ujung Tanjung Estate, and three triplets within Kandista Estate – see SI1. The photographs [credit: Julia Drewer] give an example of what the understory vegetation looked like in the Core and Edge habitats.

Supplementary Information 3: Stacked bar with weather (sunny versus cloudy) and time of survey (AM versus PM) by treatment for Core and Edge transects



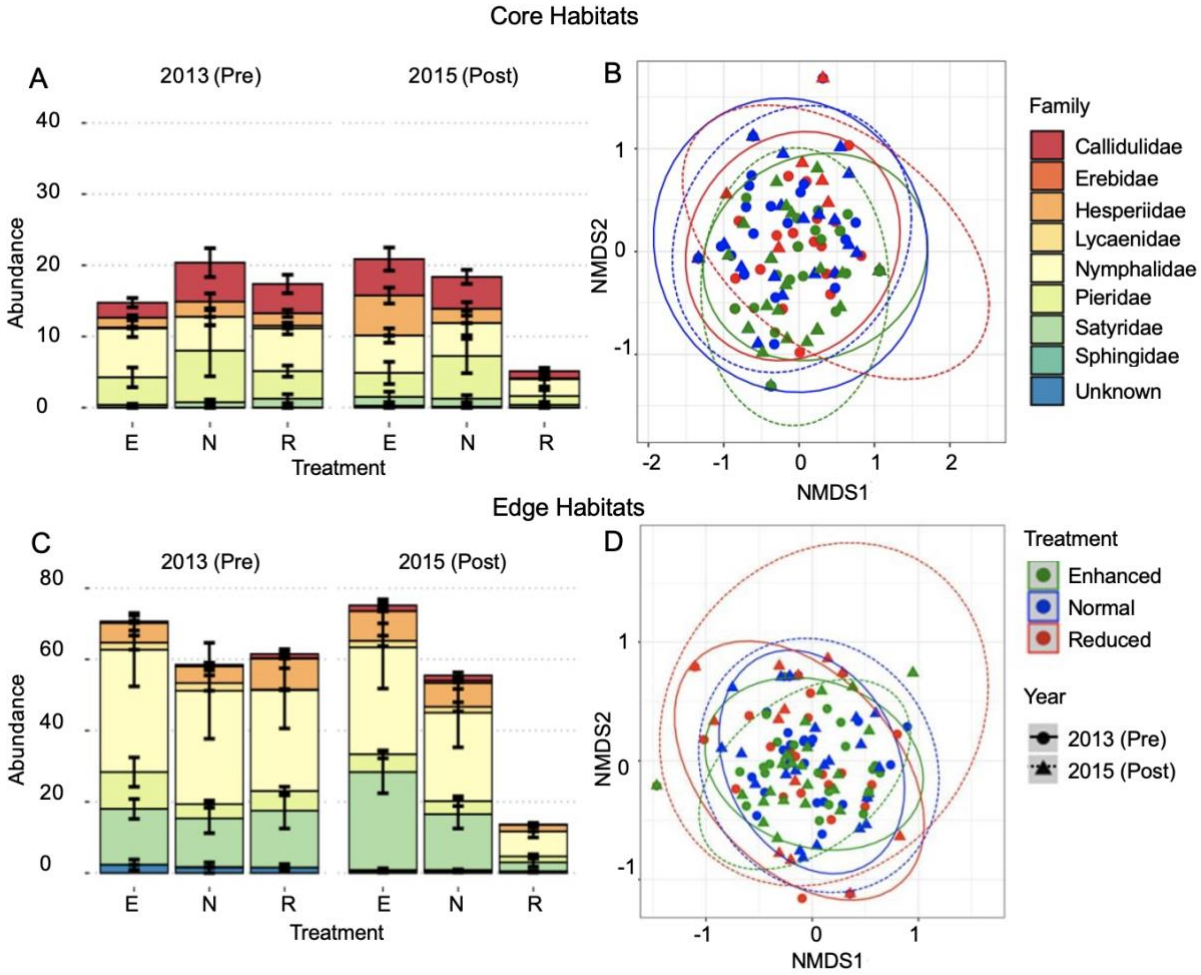
SI3: Stacked bar charts showing percentage of survey days in Core habits by weather condition at the time of survey in Core (A) and Edge (C) habitats, as well as and time of survey in Core (B) and Edge (D) habitats for 2013, 2014, and 2015, with data combined across the three treatment types (Enhanced, Normal, Reduced treatment. N = 419). There was no statistically significant difference in weather conditions during surveys (chisquared = 0.328, p = 0.85), or in the time of survey (chi-squared = 0.918, p = 0.632) between treatment types in Core habitats. The same is shown for the weather conditions (C) and time of survey (D) in Edge habitats.

Again, there was no statistically significant difference in weather conditions during surveys (chi-squared = 0.288, p = 0.87), or in the time of survey (chi-squared = 0.910, p = 0.634) between treatment types in Edge habitats.

Supplementary Information 4:

Excel file of raw data, uploaded on The University of Cambridge Online Digital Depository https://doi.org/10.17863/CAM.96818.

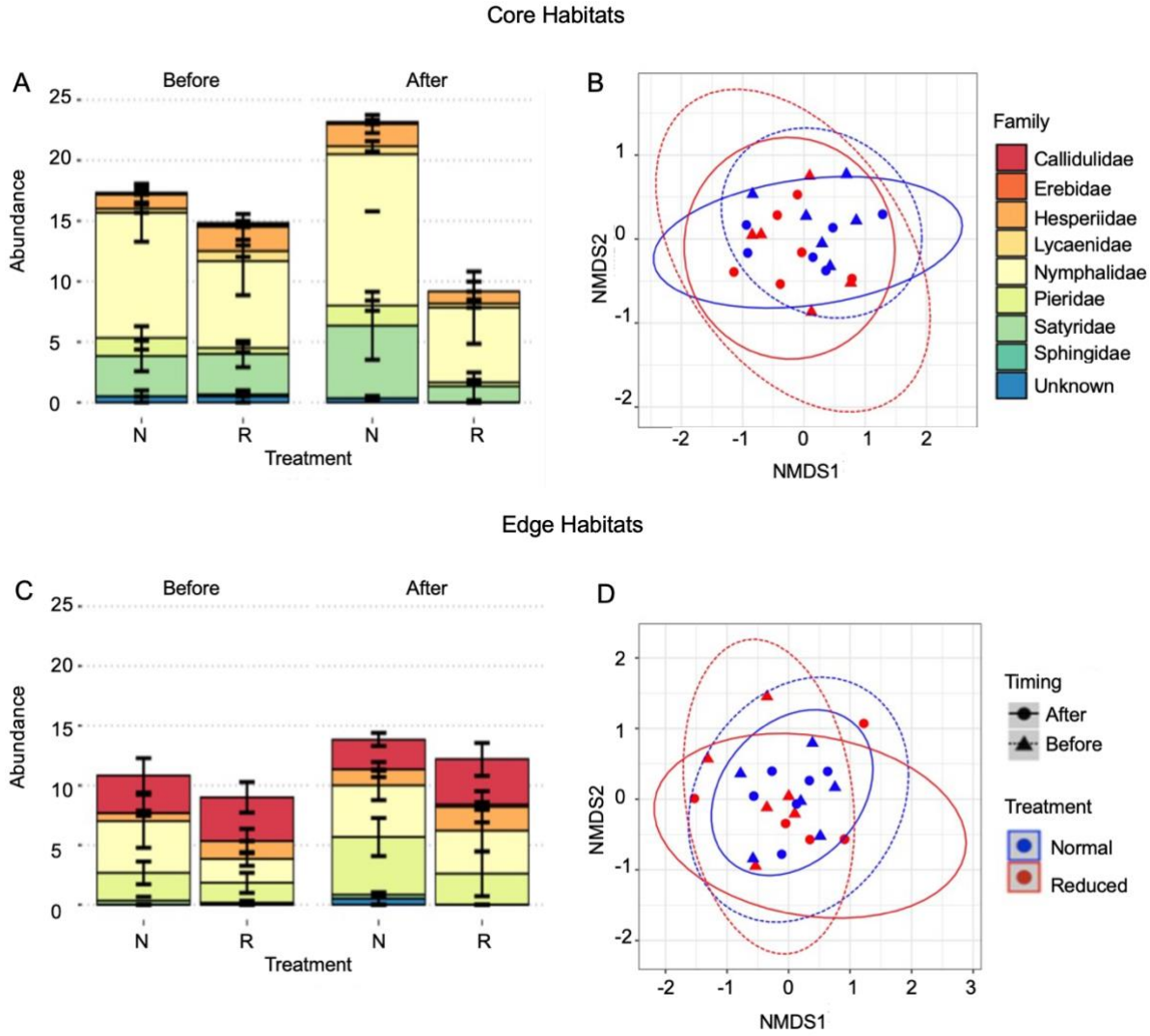
Supplementary Information 5: Long-term (2013, 2015) abundance of Lepidoptera at family level by treatment for Core and Edge transects



SI5: Stacked bar charts showing the total abundance of Lepidoptera individuals by family for Core sites in 2013 and 2015, across the three treatment types (E = Enhanced, N = Normal, R = Reduced treatment) (A). Results of nonmetric multidimensional scaling, showing the effects of year and treatment type on species composition of butterflies and day-flying moths in Core habitats (B). The same is shown for Edge habitats (C, D). Points are

spherically grouped by plot type (2013 Reduced, 2013 Normal, 2013 Enhanced, 2015 Reduced, 2015 Normal, 2015 Enhanced), based on a 98% confidence interval and using a Bray-Curtis dissimilarity matrix with 999 permutations (stress = 0.07). N = 287, based on repeated surveys at each transect as detailed in "Methodology" section.

Supplementary Information 6: Short term (2014) abundance of Lepidoptera at family level by treatment for Core and Edge transects



SI6: Stacked bar charts showing the abundance of Lepidoptera individuals by family for Core (A), and Edge (C) sites immediately before and after treatment implementation across the Normal (N) and Reduced © treatment types. Results of the nonmetric multidimensional scaling, showing the effects of time period and treatment type on species composition of butterflies and moths in Core (B) and Edge (C) habitats. Points are spherically

grouped by plot type (Pre-treatment Reduced, Pre-treatment Normal, Pre-treatment Enhanced, Pre-treatment Reduced), based on a 98% confidence interval and using a Bray-Curtis dissimilarity matrix with 999 permutations (stress = 0.11). N = 147, with values based off of single transect surveys as detailed in "Methodology" section.