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- [BROWSE BY DAY](#)
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ADDITIONAL RESOURCES

- [MEETING HOME](#)
- [97TH ESA ANNUAL MEETING](#)
- [ESA HOME](#)

PS 106-206 - Effect of fire on habitat functional diversity and herbivore diversity in Ol Pejeta Conservancy, Kenya

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Exhibit Hall DE, Oregon Convention Center

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Background/Question/Methods

The African savanna biome supports a higher diversity of herbivore species than is found in any other biome or continent. In order to maintain the habitats necessary to support a large diversity of wildlife species, much emphasis has traditionally been placed on the role of fire as a management tool. We hypothesize that herbivore abundance, diversity, and habitat utilization patterns in Ol Pejeta Conservancy in Kenya are modulated through fire management and its effect on habitat functional diversity. Between 2005 and 2010, transect surveys were used to monitor patterns of wildlife abundance and species diversity across a functional diversity gradient; from pure grassland to pure bushland.

Results/Conclusions

Preliminary findings show that large herbivore (black rhino, elephant and giraffe) populations increase under bushland conditions. Conversely, small grazer abundance and diversity increased in open grassland but declined markedly in *Euclea divinorum* and *Acacia drepanolobium* dominated bushland. Intense fires shift vegetation from bushland to grassland state. Low fire frequency in turn allows resurgence of bushland and decline in both abundance and species diversity of small grazers. The effect of fire on the functional diversity of habitat within savanna ecosystems has a strong influence on herbivore diversity, distributed across body size classes and feeding guild (browsers/grazers). By explicitly characterizing the effects of habitat functional diversity on herbivore species abundance and diversity, our study underscores the need for promoting biodiversity as a goal of management and conservation of wildlife in the African savannas.

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[<< Previous Abstract](#) | [Next Abstract](#)