

Original Article

# Encroachment of open grasslands and *Acacia drepanolobium* Harms ex B.Y.Sjöstedt habitats by *Euclea divinorum* Hiern in Ol Pejeta Conservancy, Kenya

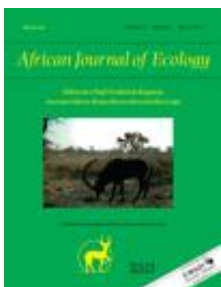
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## Keywords:

*Acacia drepanolobium* ; encroachment; *Euclea divinorum* ; grassland; invasion; seedlings

## Abstract

*Euclea divinorum*, a fast establishing, unpalatable, and fire resistant bush is considered an invasive species in some parts of its range. In Ol Pejeta Conservancy (OPC), Kenya, *E. divinorum* bushes cover ~27% of the total area (~9470 ha.) and has been expanding in coverage and encroaching into *A. drepanolobium* woodlands, a key woody habitat for the endangered black rhino. Between 2006 and 2010, we assessed the spatial distribution, annual rates of spread and recruitment of *E. divinorum* in OPC. We used data from satellite imagery and belt transects laid at the transition between *E. divinorum* habitat and other habitats. Density of *E. divinorum* seedlings increased by 27% annually over five years, with more seedlings establishing in grassland habitat (56.6%) than in *A. drepanolobium* woodland (43.4%). Within the infection frontier, the number of seedlings was high at the ecotone and reduced predictably with an increase in distance into the infection zone. Increase in rainfall facilitated recruitment and survival of *E. divinorum* seedlings and also reduced damage on trees and seedlings by mega-herbivores, especially elephants. This study confirms the encroachment of *E. divinorum* bushland into other habitats. This has been accelerated by burning and damage to *A. drepanolobium* habitat thus opening it up to encroachment by *E. divinorum*.

## Résumé

*Euclea divinorum* est un buisson qui s'installe rapidement, d'un goût désagréable et résistant au feu. Il est considéré comme une espèce invasive dans certaines parties de son aire de répartition. Dans l'Ol Pejeta Conservancy (OPC), au Kenya, les buissons d'*E. divinorum* couvrent quelque 27% de la superficie totale (env. 9470 ha) et ils s'étendent encore et envahissent les forêts à *A. drepanolobium*, un habitat forestier crucial pour le rhinocéros noir qui est une espèce en danger. Entre 2006 et 2010, nous avons évalué la distribution spatiale, le taux de dispersion annuel et le recrutement d'*E. divinorum* dans l'OPC. Nous avons utilisé des données de l'imagerie satellitaire et des *belt-transects* tracés sur la ligne de transition entre l'habitat d'*E. divinorum* et les autres habitats. La densité des jeunes plants d'*E. divinorum* a augmenté de 27% par an durant ces cinq ans, et il y avait plus de jeunes plants qui s'établissaient dans un habitat de prairie (56.6%) que dans la forêt à *A. drepanolobium* (43.4%). À la frontière des envahissements, le nombre de jeunes plants est élevé dans l'écotone et se réduit comme attendu avec l'augmentation de la distance par rapport à la zone d'infection. Une augmentation des chutes de pluie facilitait le recrutement et la survie des jeunes plants d'*E. divinorum* et réduisait aussi les dégâts causés aux arbres et aux jeunes plants par les méga-herbivores, spécialement par les éléphants. Cette étude confirme l'envahissement des buissons d'*E. divinorum* dans d'autres habitats. Ce phénomène a été accéléré par les feux et par les dégâts causés à l'habitat à *A. drepanolobium* qui s'est ainsi ouvert à l'envahissement d'*E. divinorum*.

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