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Conference Abstract

# Towards the design of a selective trap for an invasive snake

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## Abstract

Invasive snakes pose a growing threat to biodiversity, yet effective and selective trapping tools remain scarce for their adequate control. This study presents the design and evaluation of novel mechanisms aimed at enhancing trap selectivity for the control of the invasive California kingsnake (*Lampropeltis californiae*). We tested custom-designed entrance mechanisms—including funnels, turnstiles, U-shaped profiles, and longitudinal systems—under controlled and field conditions experiments and explored their success in minimizing non-target captures of endemic reptiles (*Gallotia stehlini* and *Chalcides sexlineatus*). Controlled experiments revealed that all selective mechanisms successfully guided *L. californiae*, while excluding non-target species. Field trials confirmed the high selectivity of the mechanisms, reducing non-target captures by over 98% compared to control traps. Although some mechanisms showed reduced effectiveness for smaller snakes, the integration of a 21 × 21 mm entrance profile and selective mechanism designs significantly improved operational efficiency. These findings offer scalable solutions for invasive snake management elsewhere and highlight the importance of trap refinement in optimizing control programs globally.

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## Keywords

Invasive species, snake management, trap selectivity, *Lampropeltis californiae*, Gran Canaria, trap design.

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## Conflicts of interest

The authors have declared that no competing interests exist.