Behavioral abnormalities in wild birds and reptiles and use of enrichment proposal

Universitat Autònoma de Barcelona

Laura Martino Gomez

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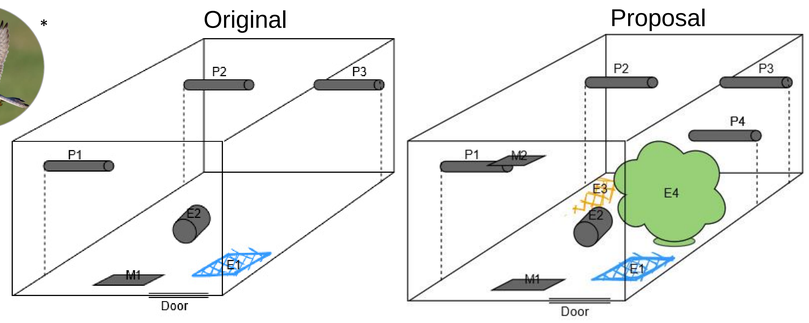
FACULTAT DE VETERINÀRIA

Introduction: Animals in wildlife rehabilitation centers (WRCs) may suffer behavioral alterations in captivity that compromise their survival once released.
Objectives: The enclosure conditions and handling methods of CRAE (Centre de Recuperació dels Aiguamolls de l'Empordà) were assessed. The objective was to find the strong and weak points of the center and make recommendations for improvement.
Materials and methods: A) Data collection and elaboration of an environmental enrichment (EE) proposal for diurnal raptors and Strigiformes. B) An already designed remodelation for fringillids was assessed and applied. C) Assessment of the response of the animals by a *scan sampling* method.

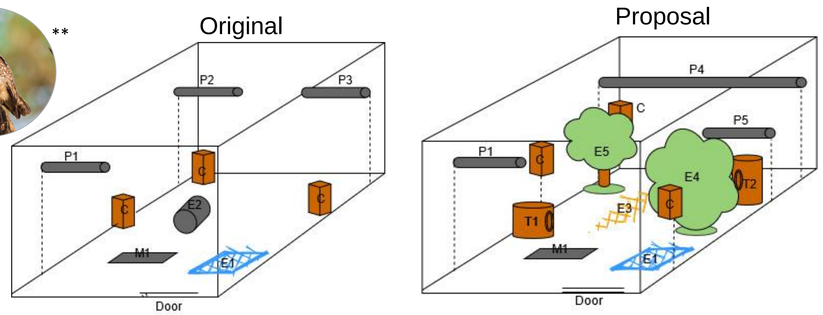
A) DIURNAL RAPTORS AND STRIGIFORMES



- ✓ Adequate materials
- ✓ Enough space
- x No visual barrier inside
- x Perches are at the same height
- x Food is deposited on the floor

- Bush (visual barrier and refuge)
- Perches at different heights
- High food deposit
- Dog toys filled with meat

Diagrams showing the diurnal raptor enclosure (left) and the EE proposal (right).



- ✓ Adequate materials
- ✓ Enough space
- ✓ Nest boxes
- x No dense vegetation
- x Perches are at the same height

- Bush (visual barrier and refuge)
- Tree hollow

Diagrams showing the Strigiformes enclosure (left) and the EE proposal (right).

B) FRINGILLIDS

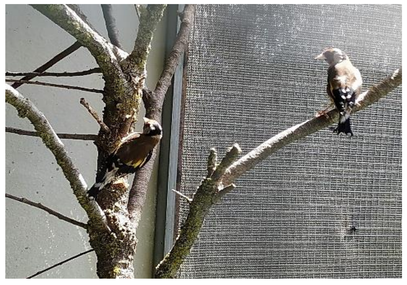
Enclosure before EE and a ripe millet head hanging from a branch.

- ✓ Perfect auditory and nutritional enrichment
- ✓ Window for *hacking*
- ✓ Division in two halves (better adaptation)
- x Cut branches die eventually
- x Cold mortality reported

Division in two halves and distribution of dead branches. *Thistle (Carduus marianus).* *Bricks and boxes for P. domesticus.* *Final result.*

- Alive vegetation, nest boxes or bricks (refuge from the cold) at a certain height (>1.8 m)
- Thistles for *Carduelis carduelis*
- By now, do not open the window

Implementation of the suggestions



C) EFFECTIVENESS ASSESSMENT

Scan sampling before and after EE implementation. A total of 16 hours (8h before and 8h after) would have been employed in this project.

		Number of animals				
		10:00	10:05	10:10	10:15	…
Activity	Resting	*1*				
	Feeding	*1*				
	Preening	*1*				
	Feather-picking	*0*				
	…					
Location	Branch A	*1*				
	Branch B	*2*				
	Feeder A	*0*				
	Sand pod	*0*				
	…					

Ethogram

Every 5', take an observational sample

Count how many animals are in each EE element and performing a certain activity. Then, calculate % of activities and use of the elements and make a comparison with the previous conditions.

Conclusions: EE and welfare assessment in WRCs are empirical because of the lack of specific studies. Before designing and using EE elements, it is necessary to investigate the biology of the species and make use of creativity. Hopefully, in the future new studies in wildlife will shed light on specific guidelines for each species to ease the process of EE.

Bibliography
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*Photo by: TheOtherKev (Pixabay). **Photo by: NevigeTom (Pixabay).