



Sexing the Monk Parakeet (*Myiopsitta monachus*) by using external measurements: morphological and colour analysis



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Introduction

- **Psittacine Monk Parakeet (*Myiopsitta monachus*)**
Agricultural and urban pest in many countries of the world
- **Sex determination**
Key factor for the management and control of wild populations
Difficult task in psittacines → 75% are monomorphic

Methods

- **Capture** of 50 individuals using the Yunick trap (Yunick, R.P., 1971) → Ciutadella park of Barcelona (2012- 2013)
- **Measurement of morphological variables** → wing, tail and beak length (mm) using a rule, beak height and width (mm) using a digital calliper, among other.
- **Extract of feathers** from wing, tail, flank, carpal and chest → colorimetric analysis using Minolta spectrophotometer
- **Extract of blood** (0,05ml) from cubical vein → molecular sexing

Discussion and Conclusions

- In Psittacines, previous work suggest → Ultraviolet reflectance and some morphological measurements, might be important to sex determination (Bonilla-Ruz, C. et al, 2011)
- We obtain that **Beak height, Wing length, Ultraviolet brightness** and 4 more variables in combination → **allows 80% of sex determination**
 - ✓ Measurements are easy to obtain in the field
 - ✓ Improve accuracy of studies on the population dynamics
 - ✓ Help in the design of management programs of the species
- Surprisingly, we obtained **higher values of ultraviolet brightness wing feathers on females**

References

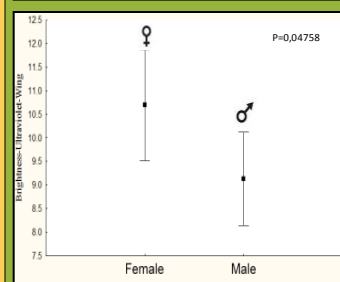
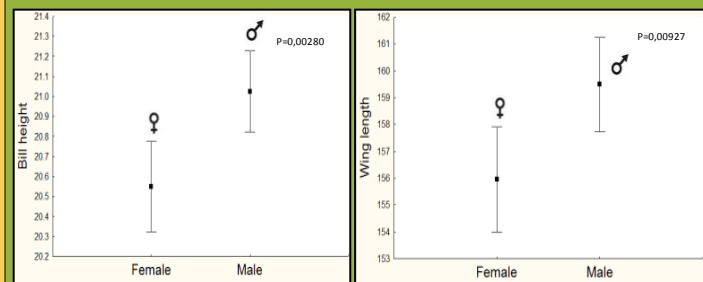
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Aim

Find some variables that allow us sexing the *Myiopsitta monachus* by non-invasive external measurements and feather coloration analysis, based on the UV reflectance.



Results



B

	Wilks Lambda	Partial Lambda	p-level
N=50			
Beak height	0.70	0.89	0.03
B-UV-wing	0.73	0.86	0.01
Chroma UV-tail	0.67	0.94	0.11
Wing length	0.71	0.89	0.03
R'3 length	0.70	0.90	0.04
Beak width	0.65	0.97	0.27
Skull length	0.64	0.98	0.32

A

Classification Matrix				
Rows: Observed classifications				
Columns: Predicted classifications				
Group	Percent Correct	F	p=	M
F	81.0	17	4	
M	79.3	6	23	
Total	80.0	23	27	

- A) Discriminate Analysis** shows a 80% correct the identification of sex from a model with 7 variables
- B) Univariate Analysis (ANOVA)** shows significant values for Beak height, Wing length and Ultraviolet brightness from wing