

# Reproductive success of the White-collared Swift (*Streptoprocne zonaris*) in south center Cuba



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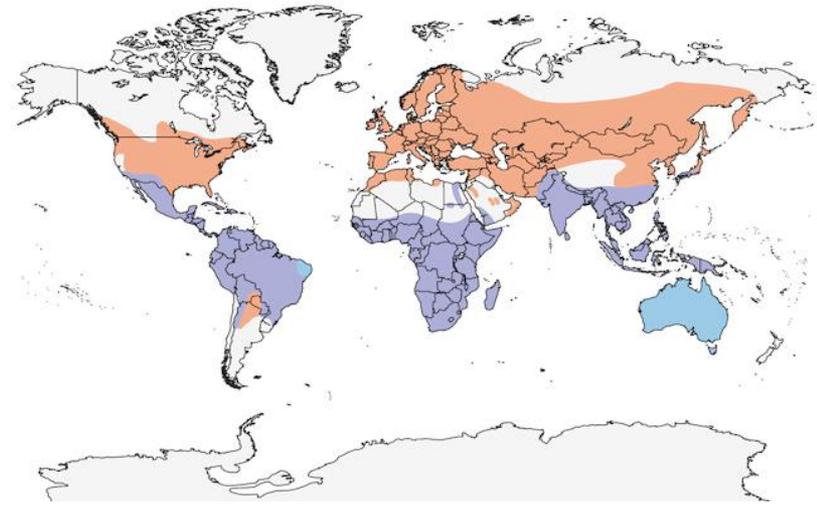
**Breeding success of birds is the number of fledglings per female or breeding pair.**

**Its values can be used in simulation models to estimate population growth.**

**It could be affected by several factors (the type of nest, the substrate used to fix them, the height at which the nest is built, predation and climate); which can vary within and between breeding seasons.**



# Swifts are Cosmopolitan birds



## In Cuba 4 species





**The White-collared Swift  
(*Streptoprocne zonaris*) is the largest  
swift in Cuba**

**Restricted to the mountains of the  
center and east part of the island**

**Many aspects of its natural history and  
reproductive ecology are unknown**



**The aim of this study was to determine the breeding success of the White-collared Swift (*Streptoprocne zonaris*) in south central Cuba**

# Topes de Collantes 2009-2010



Salto Vegas Grandes  
Cueva La Batata  
Sumidero de Codina  
Cañon de El Colln

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image Landsat

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8.36 km

21°58'00.41" N 80°05'45.50" O elev. 0 m

Alt. ojo 28.91 km

# The nesting places



**Vegas Grandes  
Waterfall**



**La Batata Cave**



**El Colín Canyon**

- **Formed by surface water runoff**
- **Watercourse active year around**
  - **Formed in limestone rocks**



## Variables considered:

**Hatching success: Hatching of at least one egg**

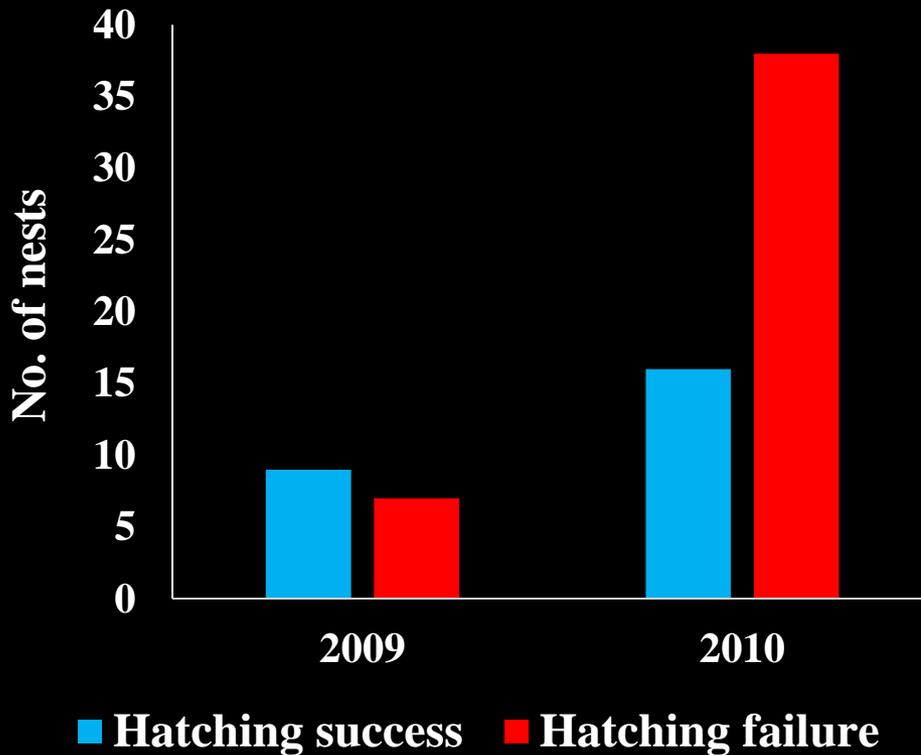
**Breeding success: Fledging of at least one chick**

## Determinants of success considered:

- Habitat selection: type of cave (open/closed), presence of water (yes/no)
- Nest characteristic: height, location (roof /wall), placement (hollow/ledged)
- Nest reuse
- Egg Volume



## Hatching Success



Global Hatching success:  
76.8 %

Average No. eggs/nest:  
 $1.39 \pm 0.78$  (N=82)

### Determinants of hatching success:

Nest location ( $p=0.019$ ), higher success in the wall (87.8%)

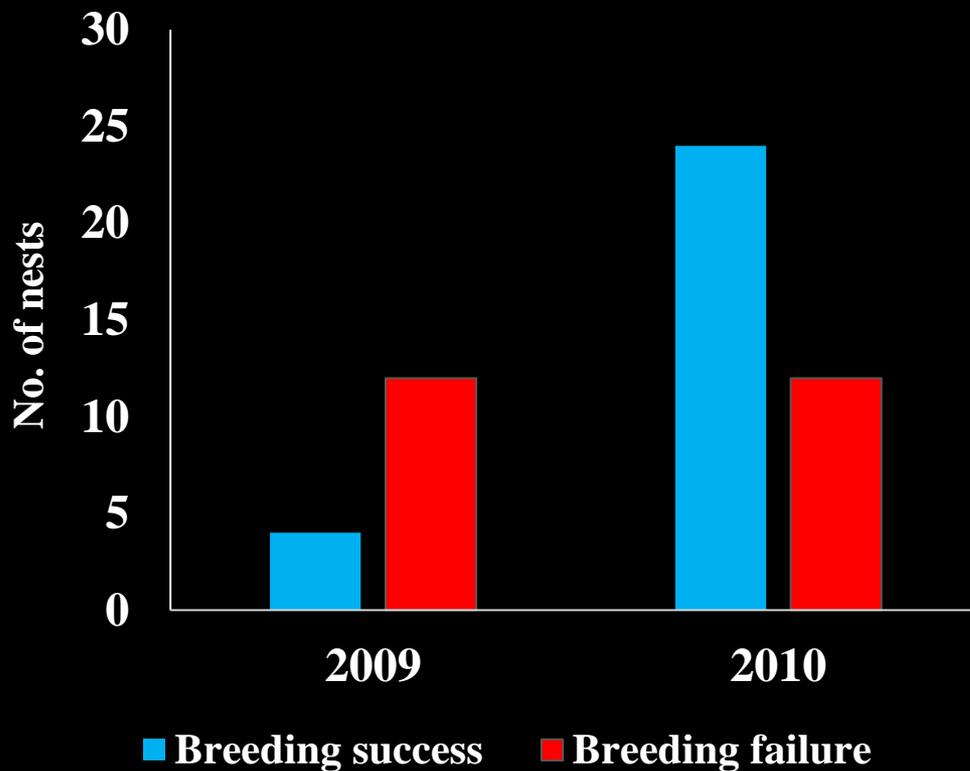
Nest reuse ( $p=0.006$ ), higher success in reused nests (94.1%)



**Hatching failure**



## Breeding success



Global Breeding Success:  
63.64 % (N=82)

Average No. chicks/nest:  
 $0.87 \pm 0.8$  (N=82)

## Determinants of breeding success:

Nest reuse ( $p=0.011$ ), higher success in reused nests (87.1%)

Egg volume ( $p<0.05$ ), higher success for greatest volume

## Breeding failure:

- Fall from the nest
- Parental desertion
- Predation



**Potential predators detected  
within nesting sites**



*Rattus sp.*



*Capromis pilorides*



*Pilobocera sp.*

The reproductive success shows intermediate values between Central and South America

The greatest losses were caused by river floods and the fall of eggs from the nests, contrary to what was reported in America (predation)

The role of nest reuse suggests that most successful pairs occupy the best sites, with an advantage over the less experienced ones



Eggs lost were not replaced, presumably due to the effort involved in laying and because the reproductive period of *S. zonaris* takes place in a very specific period of time

The influence of egg volume on the breeding success suggests a possible adaptation to uncertain foraging conditions

Incubation, a critical moment of reproduction, has implications for the management of the species (artificial nest sites, control of visitors and activities in caves..)





**Thank you**