AEROMAB PROJECT

(Aerospace Technologies applied to Biodiversity Conservation)

"Reconciling aerospace and biodiversity conservation"

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8 October 2009

GENERAL INFORMATION

- Research Institute:
  Doñana Biological Station. Spanish Council for Scientific Research (CSIC).
  Sevilla, Spain.
  www.ebd.csic.es

- In cooperation with University of Sevilla and Pablo de Olavide.
  With the support of FADA-CATEC.

- Funding Agency:
  Proyectos de Excelencia 2007.
  Autonomous Andalusian Government.

- Project Duration:
  May 2008-may 2012

- Study area: Doñana National Park. Andalusia. South west of Spain.

- More information:
  http://aeromab-english.blogspot.com/

- Contact: muleromara@ebd.csic.es

AIMS

General:

Assess and develop methodologies for the study of the environment through the use of aerospace technology.

Specifics:

1. UAS: Wildlife monitoring
2. UAS: Evaluate the impact of infraestructures

AIM 1: WILDLIFE MONITORING

- Knowledge is the first step towards conservation.
- Monitoring wildlife populations.
- Based on digital cameras recording in the visible range.

AIM 2: EVALUATE IMPACT OF INFRAESTRUCTURES

- Infraestructures have a great impact on environment.
- Powerlines produce a lot of bird deaths by electrocution and collision.
- Based on georeferenced imagery.

UAS REQUIREMENTS

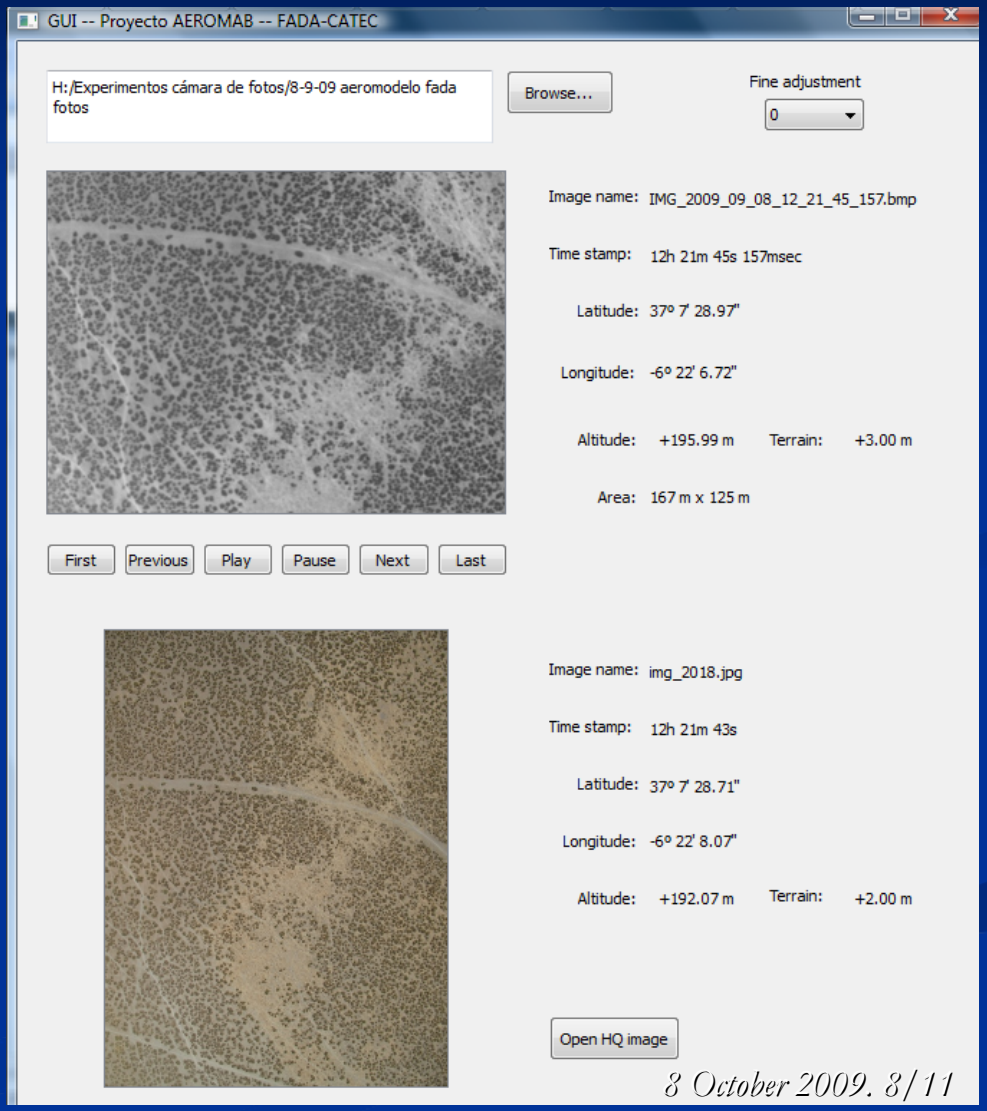
- Durable.
- Modular.
- Silent: Electric powered.
- Easy launchable and recoverable.
- Easy transportable: light and small.
- Autonomously controllable.
- Operable with minimal training.
- Collect georeferenced imagery.

UAS

UAS	UAV VIEWER
MANUFACTURER	FADA CATEC
WINGSPAN	2.5m
MOTOR	Electric
AUTONOMY	90 minutes
RANGE	Data Link 35 Km Video Link: 18 km
TAKE OFF	Hand launched
SPEED	45-110 km/h
MTOW	4.5 kg
FLIGHT CONTROL SYSTEM AND NAVIGATION	GPS+Inertial.
TELEMETRY	Diversity in frecuency. OSD
GROUND CONTROL STATION AND GDT	Portable
PAYLOAD	0.5 Kg

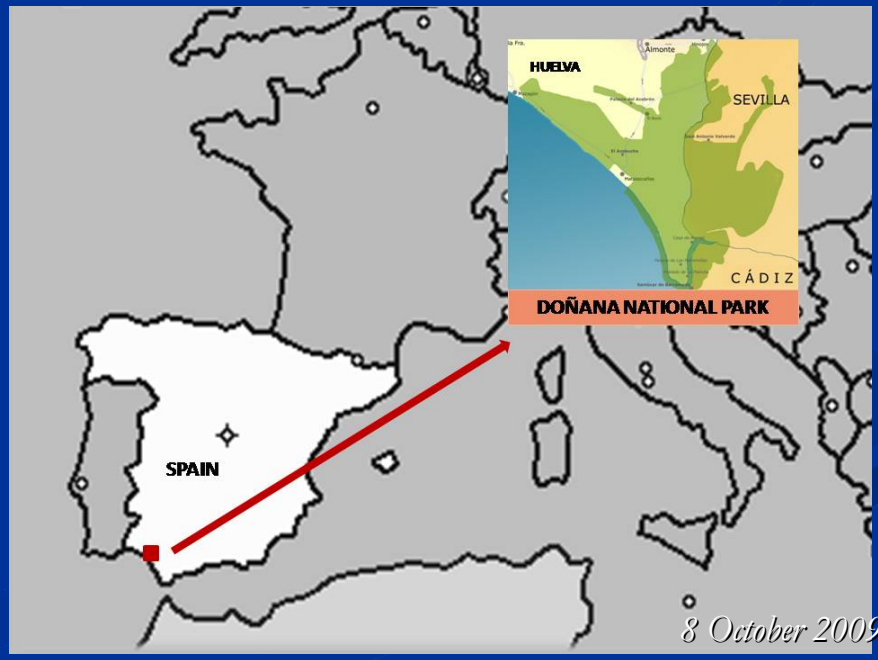
SOFTWARE

- Google Earth.
- Franson GPS gate.
- Imagery programs.



STUDY AREA

- Doñana National Park
- World Heritage Site UNESCO, 1994.
- Part of the EU Large Scale Facilities.
- 108.000 Has.
- 370 Sps of birds, 20 sps mammals.
- 700,000 aquatic birds on the marshlands.



REGULATORY PROBLEMS

- Lack of regulation.
- LER Coto Doñana: Below 6.000 ft. 153.816 Has
- Problems to fly in non-segregated airspace.
- Absence of operators title.
- No UAS certification.

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  No aerial works license.

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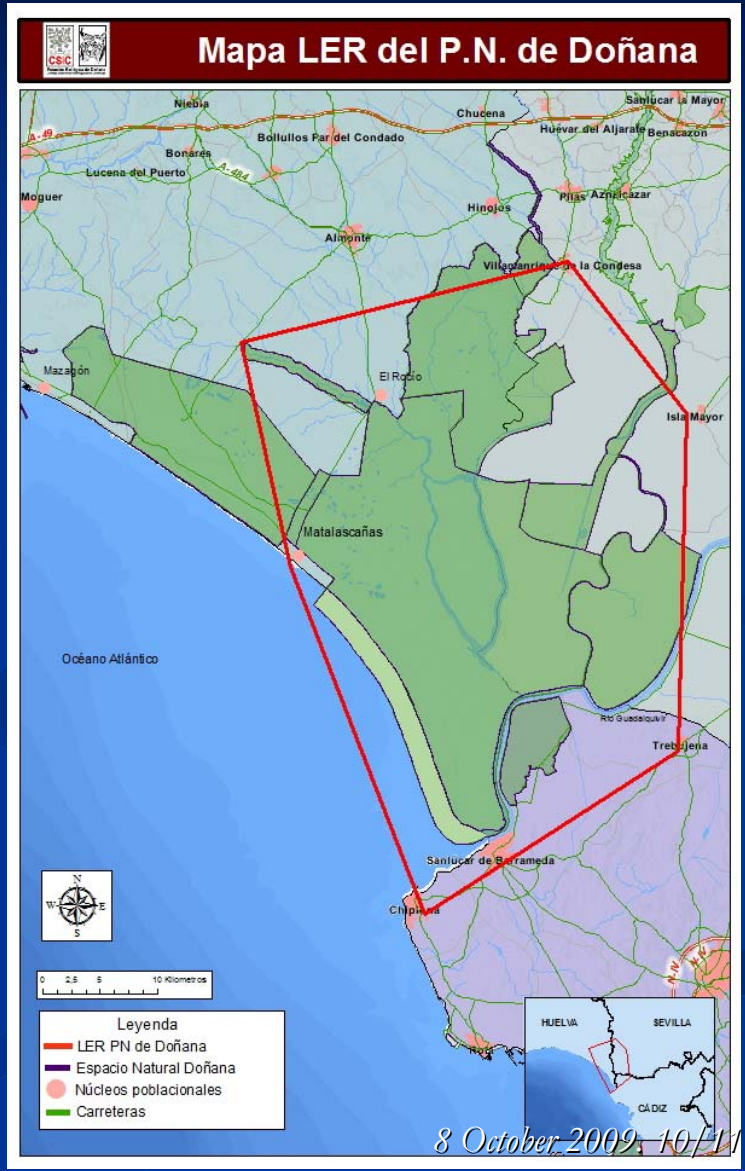
  No professional activity.
- Problems with insurance companies.



VISION OF FUTURE

- UAS as a new technological tool for environmental conservation.
- Environmental guidelines for the operation of UAS.
- Combination of the interests of stakeholders.
- Development of new methods for data acquisition in conservation biology.
- Bolster the aviation industry in Andalusia, Spain.