GO PRO FOR Med

LIFE21-NAT-IT-LIFE
GOPROFOR MED
101074738

PRESERVING AND MANAGING FOREST HABITATS IN THE MEDITERRANEAN AREA

WORKSHOP - MONDAY DECEMBER 4, 2023

Co-funded by the European Union

NATURA 2000

Biodiversity monitoring

Bat and bird surveys

GIADA GIACOMINI (DREAM)

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© Serena Corezzola

1. Target species
2. Acoustic monitoring
3. Preliminary results
4. Next steps

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1. Target species

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Bats

- All species present at the survey sites
- Particularly interested in forest specialists:
  - species roosting in trees (inside holes and under bark)
  - species feeding in forest habitats

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1. Target species

Bats

- All species present at the survey sites
- Particularly interested in forest specialists:
  - species roosting in trees (inside holes and under bark)
  - species feeding in forest habitats

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Birds

- Species nesting in tree holes, either created by them (woodpeckers) or by others (e.g. coal tit)
- Species feeding on the tree trunk (e.g. common firecrest) or on the ground and are associated with understorey structure (e.g. mistle thrush)

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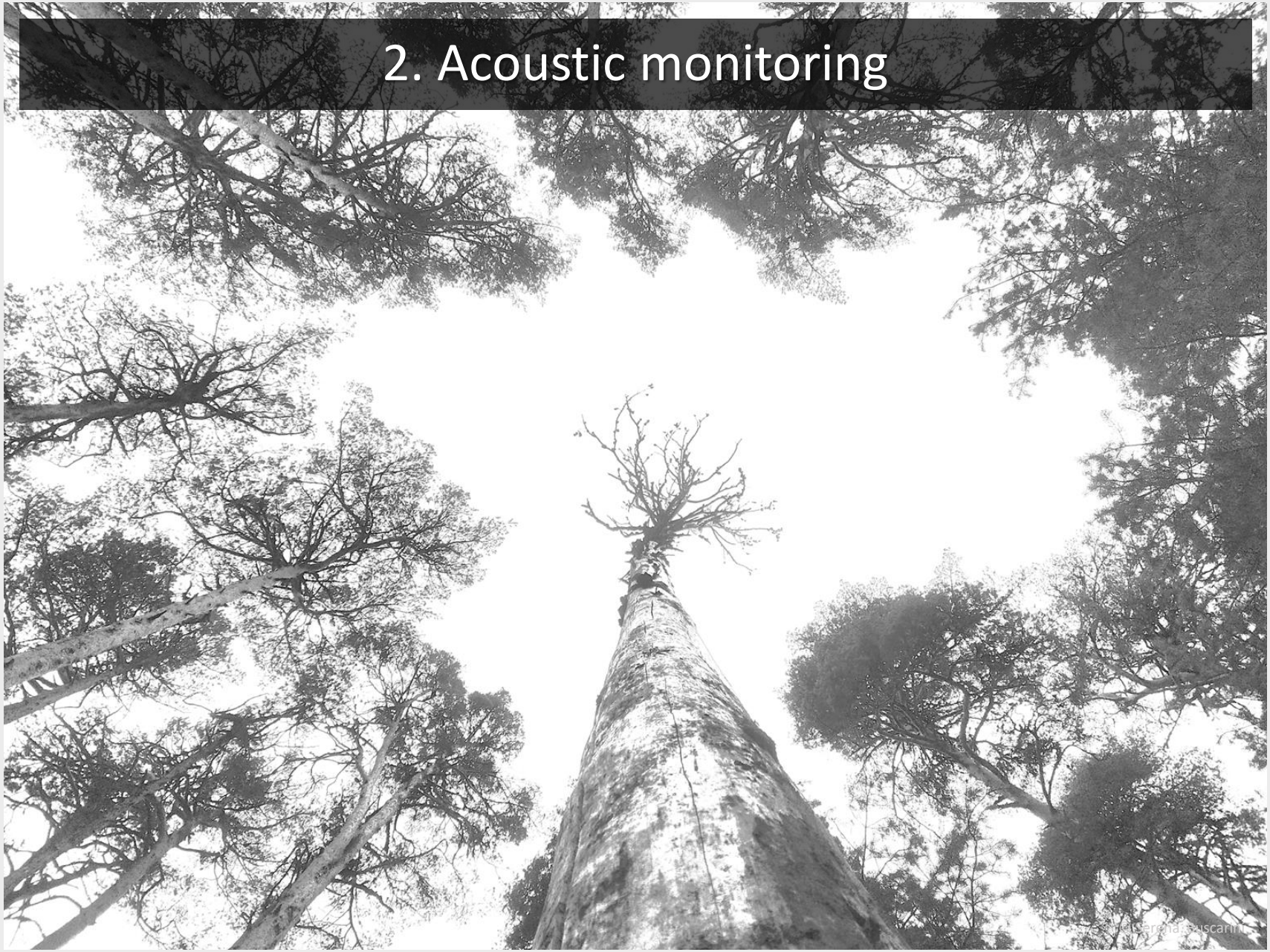
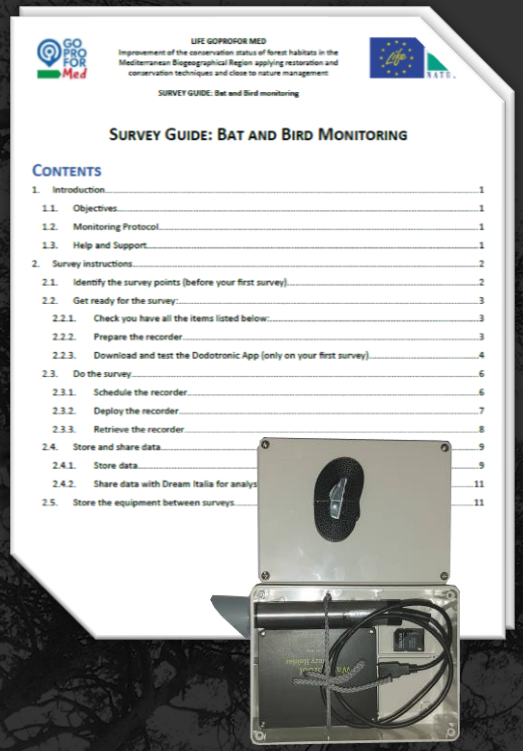
2. Acoustic monitoring



2. Acoustic monitoring

Data collection



LIFE GOPROFOR MED
Improvement of the conservation status of forest habitats in the Mediterranean Biogeographical Region applying restoration and conservation techniques and close to nature management

SURVEY GUIDE: Bat and Bird monitoring

SURVEY GUIDE: BAT AND BIRD MONITORING

CONTENTS

1. Introduction 1
1.1. Objectives 1
1.2. Monitoring Protocol 1
1.3. Help and Support 1
2. Survey instructions 2
2.1. Identify the survey points (before your first survey) 2
2.2. Get ready for the survey: 3
2.2.1. Check you have all the items listed below: 3
2.2.2. Prepare the recorder 3
2.2.3. Download and test the Dodotronic App (only on your first survey) 4
2.3. Do the survey 6
2.3.1. Schedule the recorder 6
2.3.2. Deploy the recorder 7
2.3.3. Retrieve the recorder 8
2.4. Store and share data 9
2.4.1. Store data 9
2.4.2. Share data with Dream Italia for analys 11
2.5. Store the equipment between surveys 11

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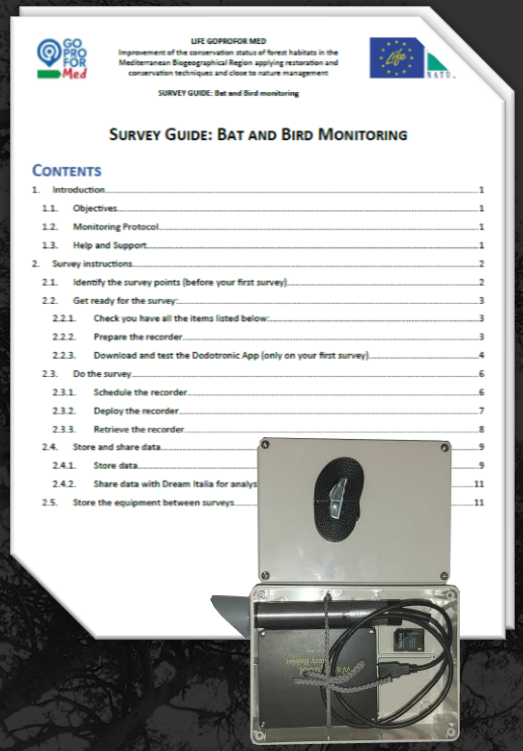
2. Acoustic monitoring

Data collection



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Two survey points per site:

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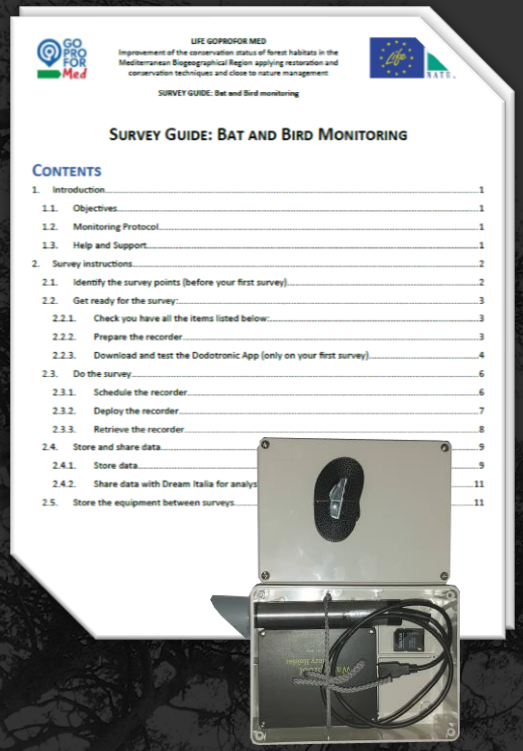
2. Acoustic monitoring

Data collection



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Two survey points per site:

48 hour survey

Once per month: May - September

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2. Acoustic monitoring

Data analysis

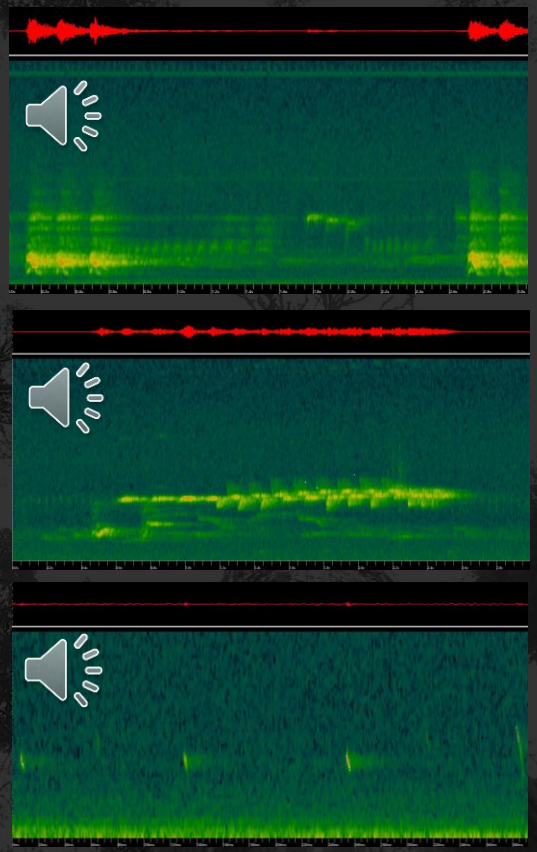
1. Automatic ID:

- Bats: BTO algorithm

BTO Acoustic Pipeline

- Birds: Bird NET algorithm

TheCornellLab
K. Lisa Yang Center for Conservation Bioacoustics



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2. Acoustic monitoring

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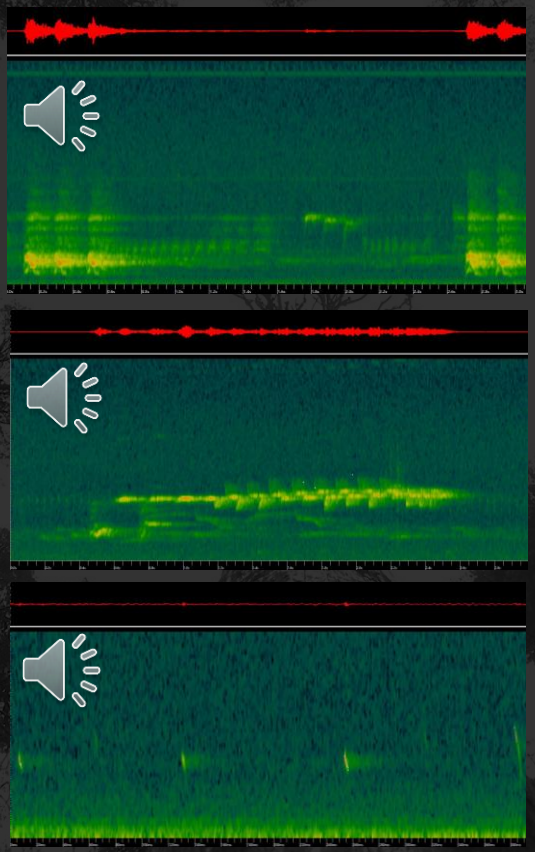
2. Manual verification of samples



Common.Name	Confidence
Eurasian Green Woodpecker	0.9975
Eurasian Green Woodpecker	0.7643
Eurasian Green Woodpecker	0.5538
Eurasian Green Woodpecker	0.9970
Eurasian Green Woodpecker	0.1801

Common.Name	Confidence
Common Firecrest	0.9975
Common Firecrest	0.7793
Common Firecrest	0.2549
Common Firecrest	0.1008
Common Firecrest	0.8095

Common.Name	Confidence
Barbastelle bat	0.93
Barbastelle bat	0.94
Barbastelle bat	0.94
Barbastelle bat	0.77
Barbastelle bat	0.88

2. Acoustic monitoring

Summary statistics

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Confidence score ≥ 0.9

For each survey plot:

- Species richness
- Activity index (proxy for species abundance)

These will be fed into the overall model including forest diversity and microhabitat indicators

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2. Acoustic monitoring

Summary statistics

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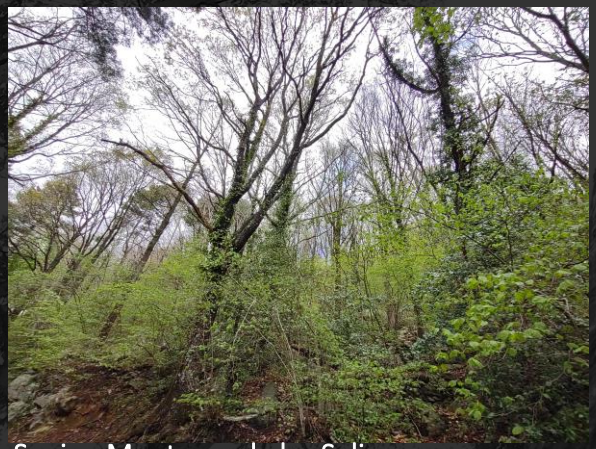
3. Preliminary results

Greece - Limnes

Spain- Paratge i Pla de Castell



Spain - Muntanya de les Salines

Italy - Pratomagno

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3. Preliminary results

	Bats		Birds	
	All detections	Detections p≥0.9	All detections	Detections p≥0.9
Total number of detections	35,405	19,593	188,272	25,385
Total number of acoustic groups / species	16	14	23	21

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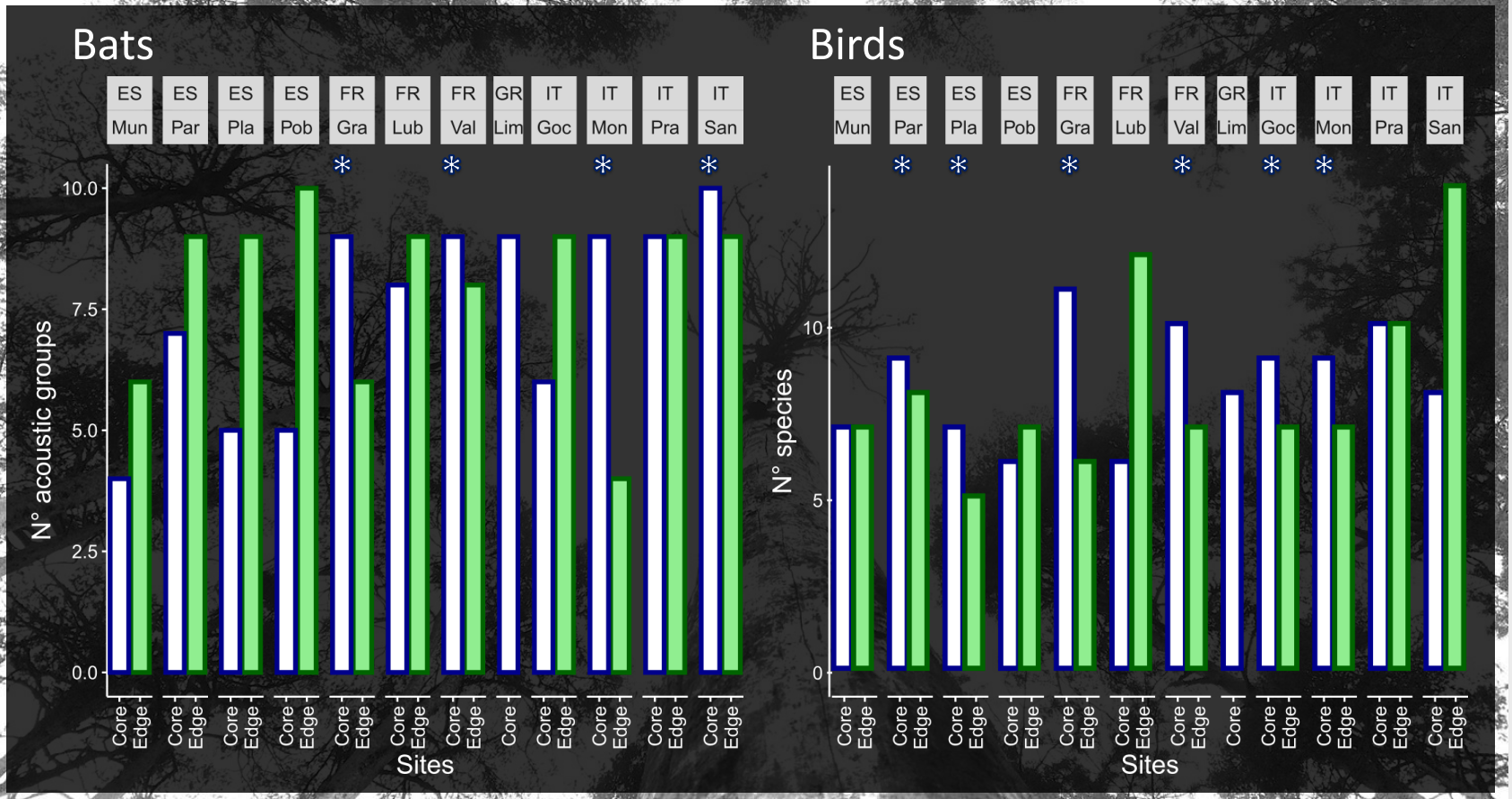
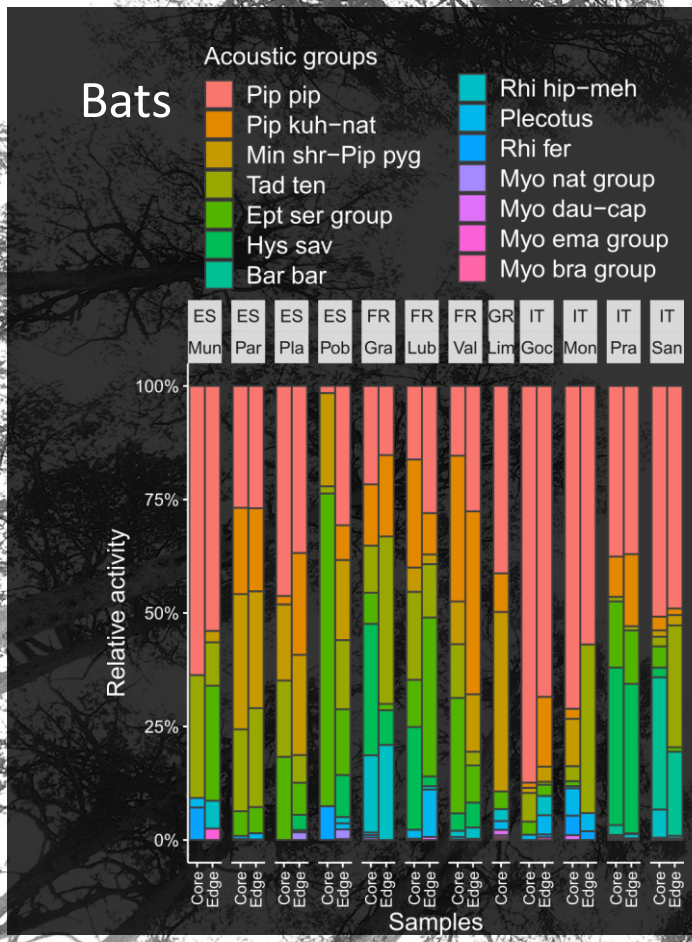
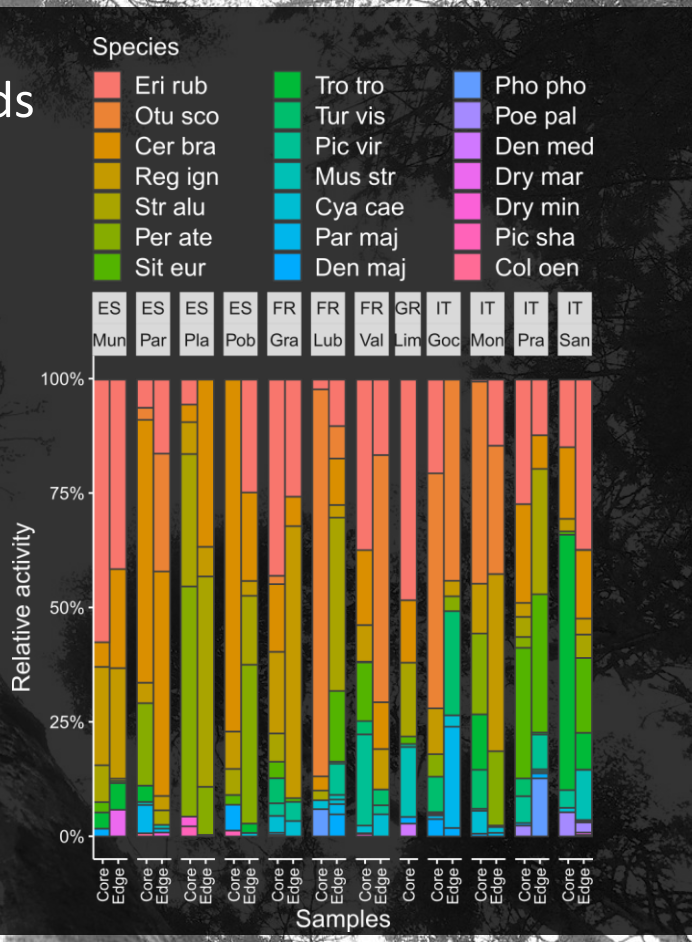
3. Preliminary results: species richness

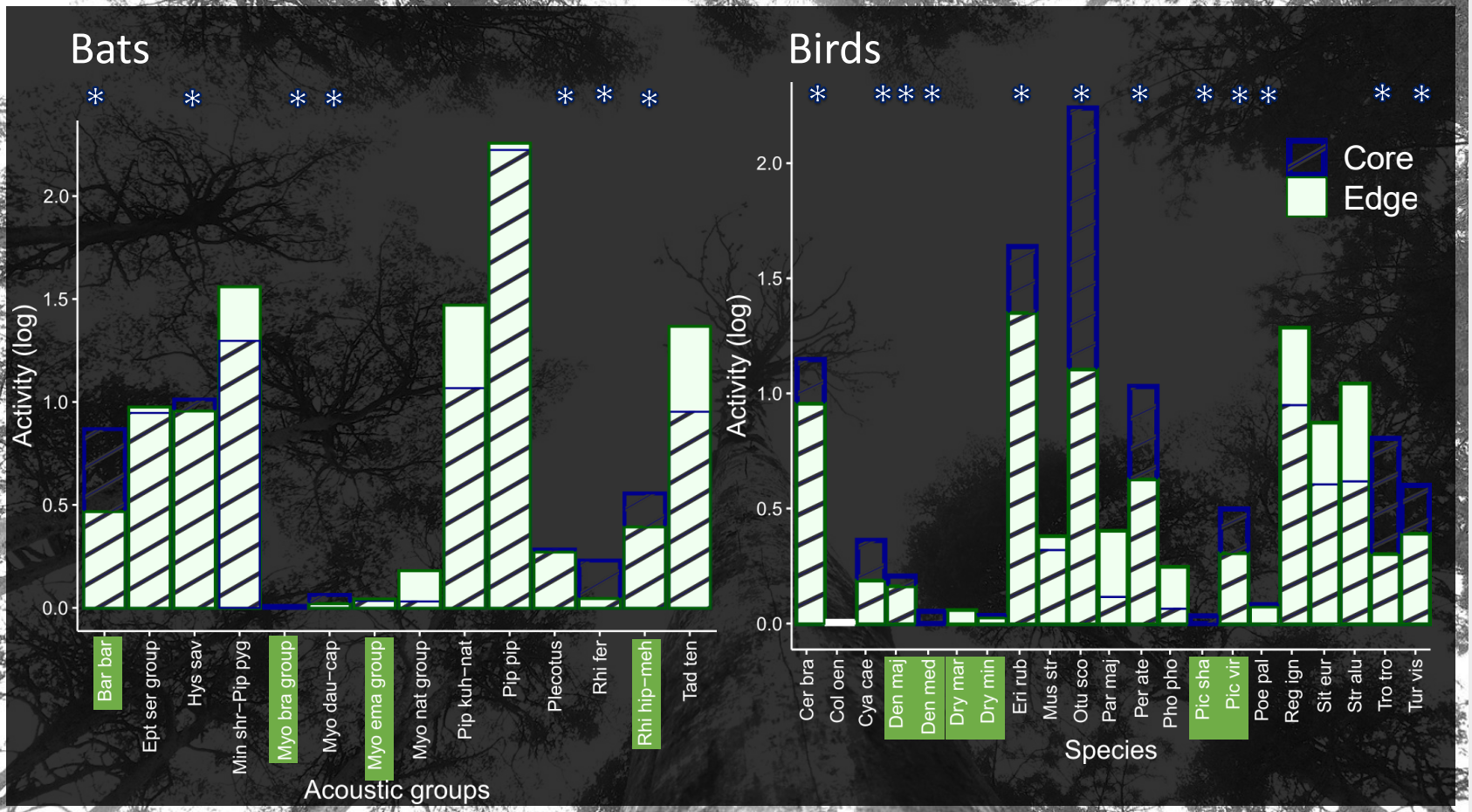


3. Preliminary results: activity by site





3. Preliminary results: activity by species



4. Next steps

1. Validate a sample of audio clips for each species to calculate the confidence score threshold;
2. Calculate species richness and activity using the detections above the threshold;
3. Use the data into a multivariate model to investigate the relationship between multi-taxon biodiversity and indicators of forest structure and senescence in Mediterranean forests.