

#### Predator control and biosecurity for seabird conservation: Methods, Challenges, Results and Roadmap for future

LIFE Arcipelagu Garnija (LIFE14 NAT/MT/991) Securing the Maltese Islands for the Yelkouan Shearwater Puffinus yelkouan

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#### LIFE Arcipelagu Garnija Project Closing Webinar

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#### Layout

- History of rat control in Maltese seabird colonies
- Rat control approach in LIFE AG:
  - Mainland sites
  - Islets
  - Biosecurity & monitoring
  - Goodnature E2 traps
  - Successes & issues
- Way Forward

## Background: rat control at Rdum tal-Madonna (RM)

- Main Yelkouan Shearwater colony in Malta: 500 pairs
- Late 1990s, early 2000s: very low breeding success high rat predation
- 2007: a seasonal rodent control program was established by RSPB and LIFE Yelkouan shearwater project (2006-2010)







#### Rat control program at RM

- Eradication not possible
- Up to 90 closed plastic bait stations: minimal number of anticoagulant rodenticide blocks each - brodifacoum 0.005% (2007-2015) and bromadiolone 0.005% (2016-present)
- Covering around 25ha on top of cliffs and boulder screes
- Baiting 1-3 times per month between February and July





# Selected colonies of Yelkouan shearwater for anticoagulant-based rodent control starting 2018







#### Selection based on:

- colony size & impact by predation;
- accessibility and feasibility;
- human resources and budget.



#### Low-intensity rat control in mainland sites



- minimum number of bait stations
- some rats still reach colony

## Fairly constant bait consumption throughout season on main land sites:

2019

**RM01 RM04** East Cliffs South Cliffs 3000 -2000 -1000 -0 -, **- - -**, , , , , , , , , Feb Mar Apr May Jun Jul Mar Apr May JurFeb May Jun Jul Feb Mar Apr May Jun Mar Apr Jul

### St. Paul's Island – eradication attempt

- 100m from mainland Malta
- Well within known black rat swimming distance
- 50m x 50m grid of bait stations





### Excellent results in 2018 and 2019...

...despite a few incursions towards the summer



#### St. Paul's Island

#### Less so in 2020, with consistently high bait take...

#### St Paul's Island



In prep.

#### ...and increase in house mouse



#### Cominotto – control and eradication attempt



- Just over 100m to Comino
- Right next to one of Malta's busiest tourist spots
- 2018: rat control just above and in colony
- 2019 & 2020: isletwide eradication

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## Far lower bait consumption when compared to the cliff site on Comino...



## ...and fewer incursions on Cominotto than St Paul's Islands even in 2020

# Introducing the concept of biosecurity to the Maltese Islands



- Filfla is the only rat free islet in the Maltese Islands
- Beyond rat swimming distance from mainland
- ERA request complete biosecurity checklist from any permitted researchers
- Monitoring and preparedness for rapid response

### Monitoring of «rat free» sea caves & islets

#### Wied Babu Sea Cave

- 12+ pairs of Yelkouan Shearwater
- Rat free in 2017-2019; rats in 2020



### Monitoring of «rat free» sea caves & islets

#### **Fungus Rock**

- No signs of rats in 2016-2018
- Only 30m from mainland
- Mostly sheer cliff
- Rats in 2019 & 2020



## Anticoagulant baiting backed up by E2-Goodnature traps

- Great for caves that cannot be accessed frequently
- Not suitable for vegetated cliff ledges with reptiles
- Initial test in 2017: at least five skinks and two wall-lizards killed on Cominotto
- No confirmed non-target kills in 2018-2020 through trail cameras or regular checks





# E2 traps work best in places/periods without anticoagulant baiting



Highest in boulder scree areas where anti-coagulant baiting is not carried out: 23 rats/three traps/one season



## Successful years for Yelkouans!

- 130 & 119 nestlings and fledglings ringed in Maltese colonies in 2018 & 2019 respectively – all time records!
- Result of more colonies monitored as well as higher reproductive success at colonies with rat control





#### Increased reproductive success

- Reproductive success regarded as % of nests under incubation in which a chick made it till around Four+ weeks old
- Any increase in sample size of nests is due to increased knowledge and effort
- Other factors than rats affecting reproductive success?

	MT09 L- <u>Irdum tal</u> -Madonna				MT22 St. Paul's Island				MT24: Majjistral NHP			
	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019
No. nests monitored	24	38	53	47	9	9	8	8	12	11	41	37
Reproductive success (%)	88	84	80	73	67	11	75	63	33	55	61	43
Average % reproductive success (%)	81				39		69		44		52	

#### An apparent increase population size?



- Results from long-term Capture-mark-recapture
- Less nest predation -> adults stay throughout breeding season -> more likely to be ringed

### The Future

- Annually recurring seasonal rat control is currently the only working solution
- Rat levels fluctuate need an adaptive approach
- Other threats need to be tackled as well
- Rat control needs to be supported by additional measures to prevent sustained high rat populations – ultimately reduces costs
- Continued collaboration with waste management stakeholders: Local Councils, ERA, MTA
- Integrated Invasive species management alien plants
- Rat Control on large boats to prevent incursions on islets

## Wider value of the project

- Long term (latest of three consecutive LIFE projects), wide ranging (addressing multiple threats to Yelkouans) – both rare in conservation
- Dedication to collecting high-quality evidence:
  - To define the nature and scale of problems facing Yelkouans and other seabirds
  - To test ways of overcoming these problems to find out what works
- Data has been collected, analysed, and fed back into the planning process for future activities

Painstaking work of BLM field team has made important advances in how to control rodent populations long-term around seabird colonies where eradication is not possible.

These results can help seabird conservation around the world – make sure they are made available as widely as possible!

## Despite 14 years of LIFE at L-Irdum tal-Madonna and...

- Outreach to Local Council & the ERA;
- Awareness raising amongst campers & picnickers;
- As well as organised cleanups

Sights like this are still the norm at the cliff top campsite



#### Rat control: Not a rat-proof barrier

 In 2018, the only accessible storm-petrel nest in the establishing colony at Rdum tal-Madonna was predated by rats







- All bins in NATURA 2000 sites should be closed
- Frequent waste collection
- Public outreach is a continuous process just like rat control

#### Evening Waste Collection at Blue Lagoon



#### Some invasive plants can supplement rats...



# ...as can some indigenous species such as Aleppo pine.

 One should therefore plan afforestation projects in coastal areas in a holistic manner





#### Thank You!





