

Life in the dark: monitoring and reducing light pollution for the conservation of Yelkouan Shearwater

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BirdLife Malta

LIFE Arcipelagu Garnija LIFE14 NAT/MT/991
Securing the Maltese Islands for the Yelkouan Shearwater
Project Closing Webinar 9-10 July 2020



The Milky Way over Filfla © Dorianne Grech

The value of darkness





What is light pollution?


Light Pollution in the Maltese Islands



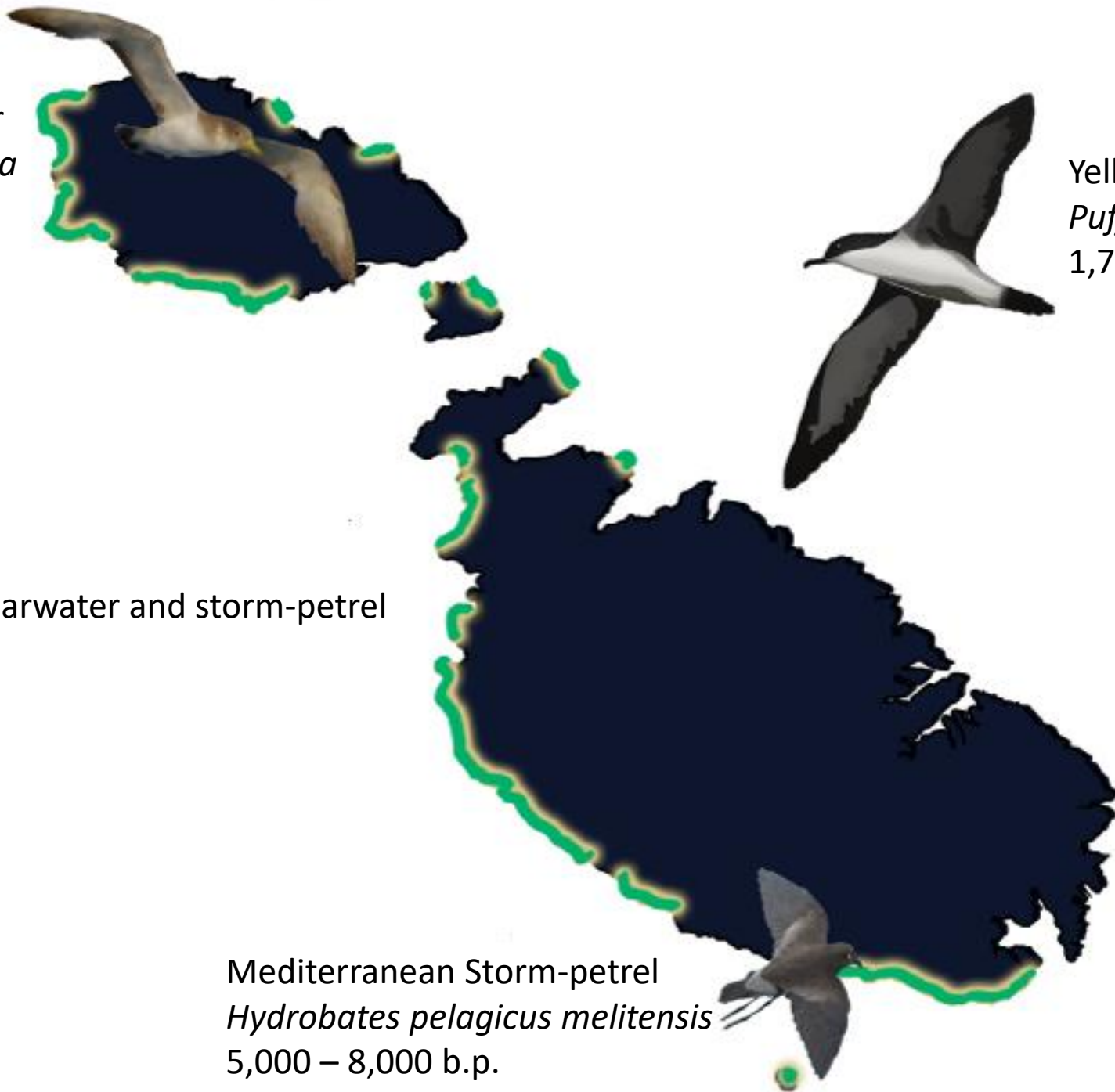
*** 17th most light polluted
country
(by population size)**
Falchi et al. 2016

Scopoli's Shearwater
Calonectris diomedea
2,670 - 3,605 b.p.

Yelkouan Shearwater
Puffinus yelkouan
1,795 – 2,635 b.p.

 Known shearwater and storm-petrel colonies

Mediterranean Storm-petrel
Hydrobates pelagicus melitensis
5,000 – 8,000 b.p.



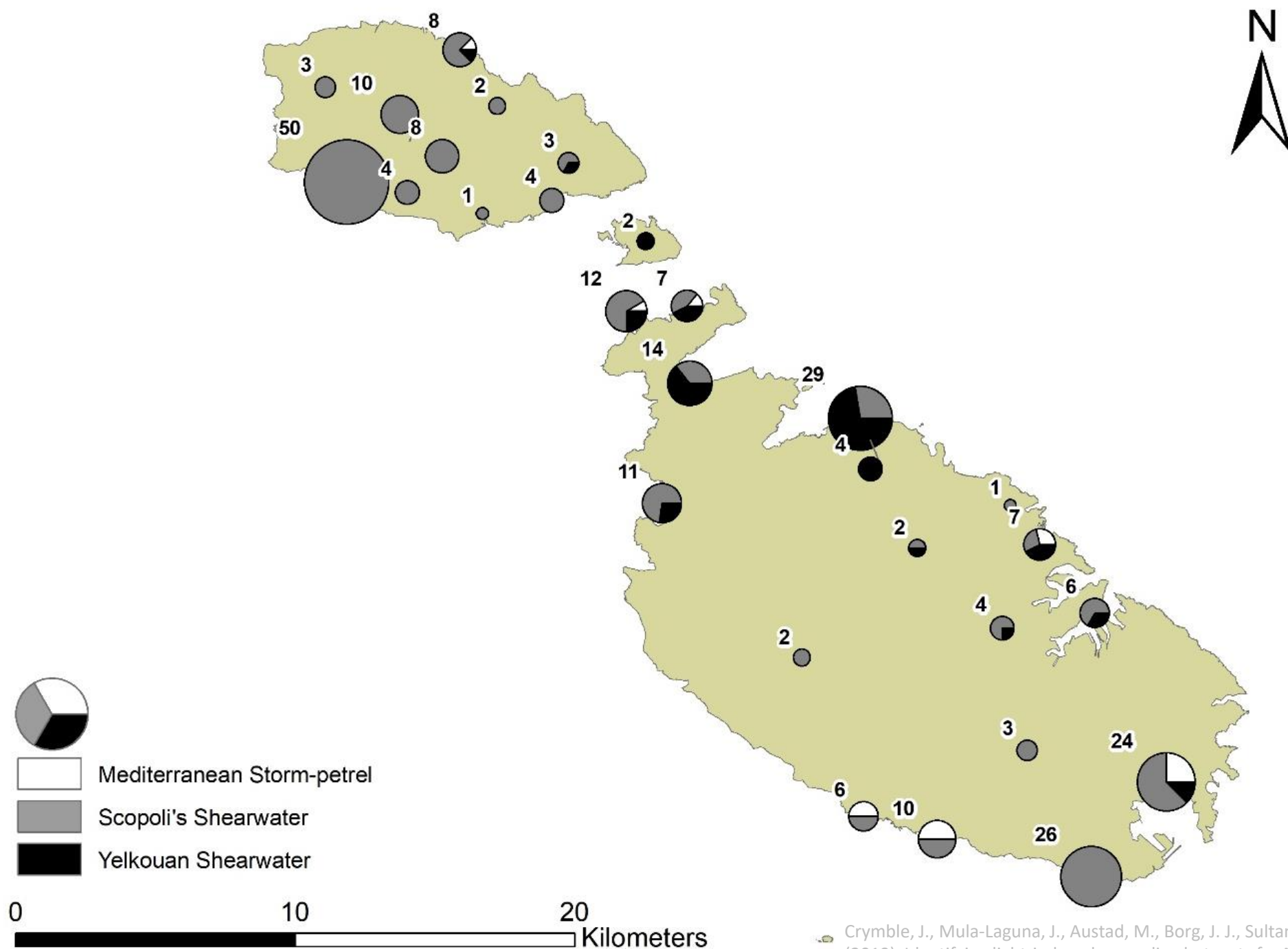
Light pollution and seabirds



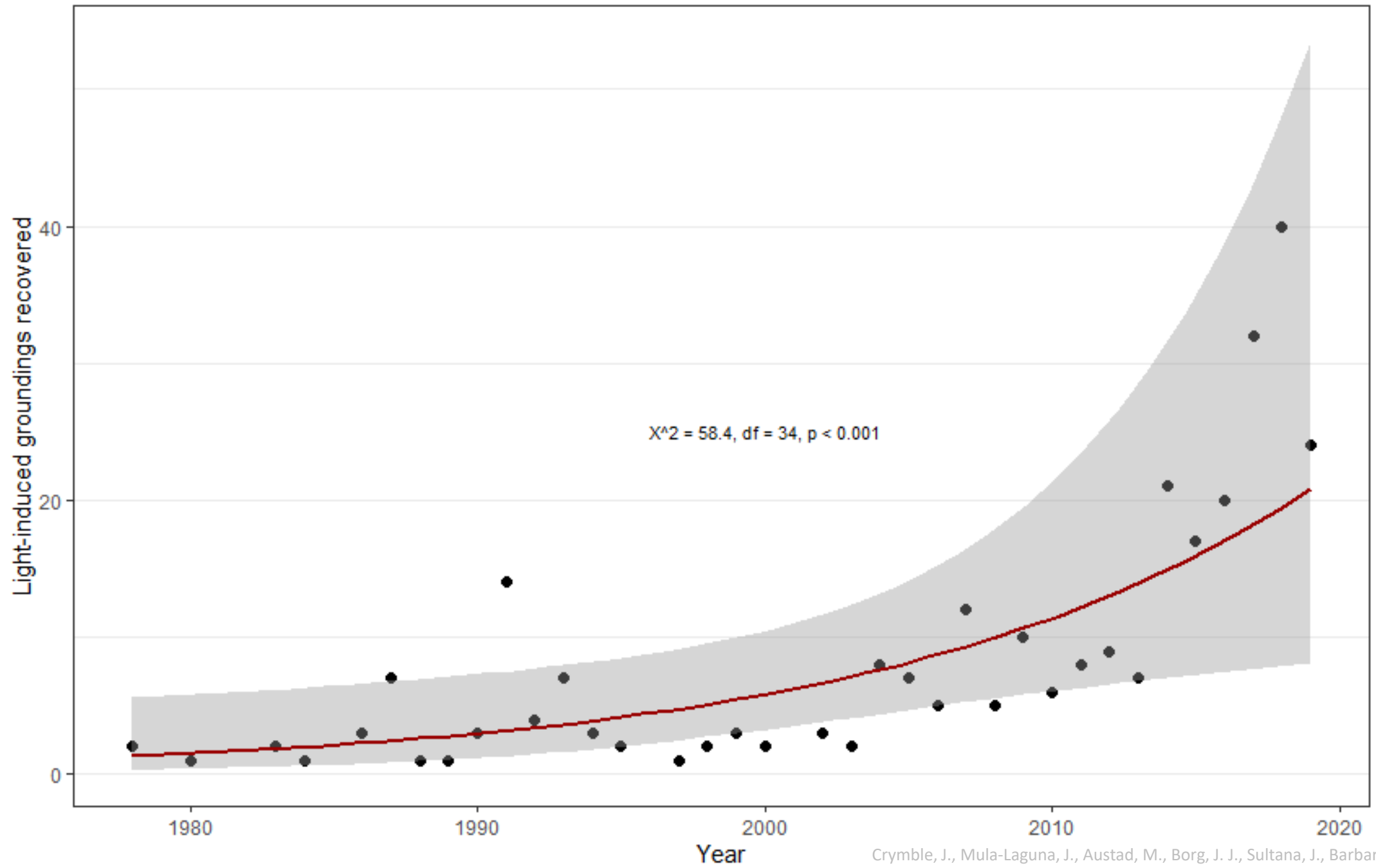
Light-induced groundings







Crymble, J., Mula-Laguna, J., Austad, M., Borg, J. J., Sultana, J., Barbara, N., ... Metzger, B. (2019). Identifying light-induced grounding hotspots for Maltese petrels. *Il-Merill, Birdlife Malta*, 34.

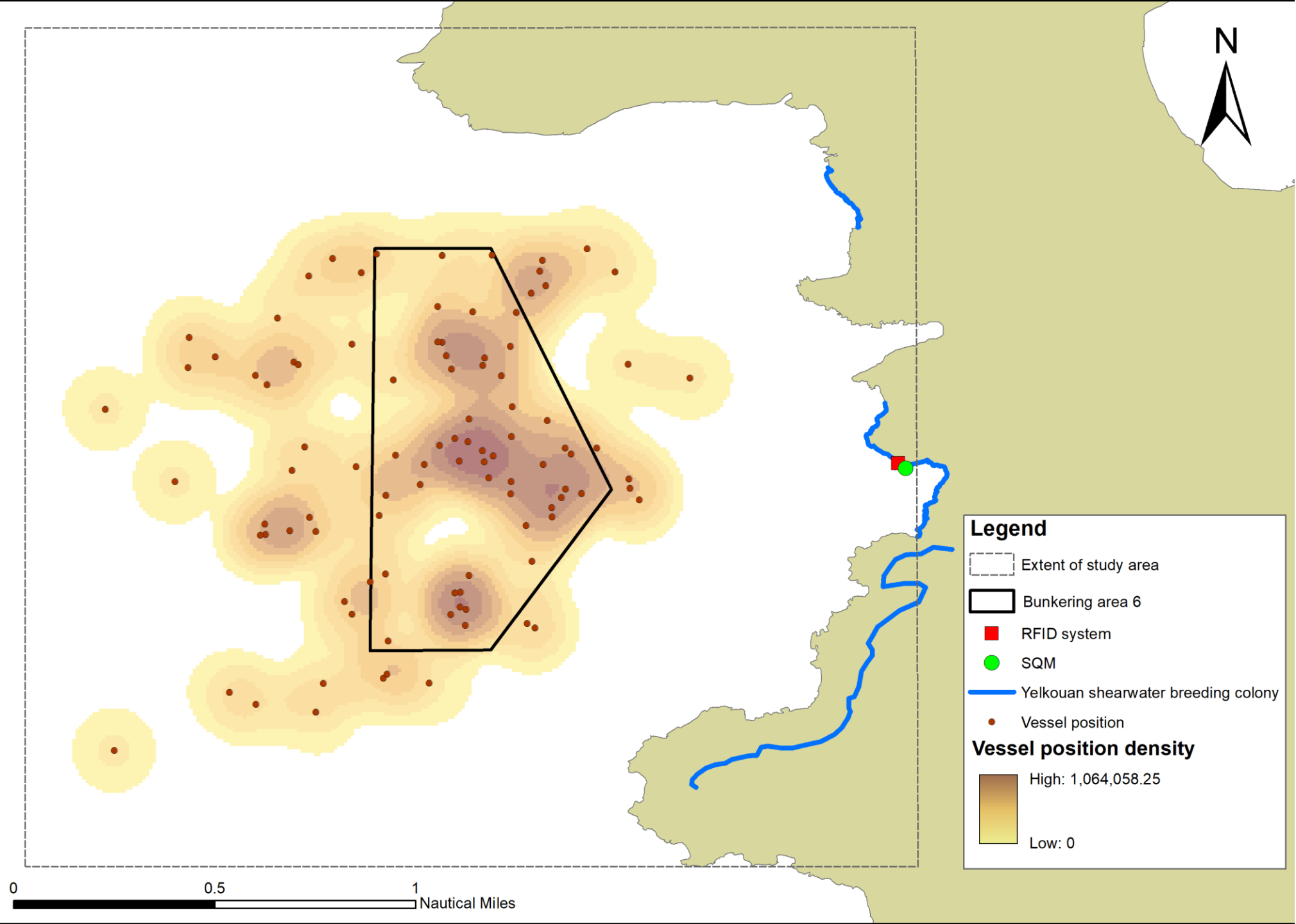


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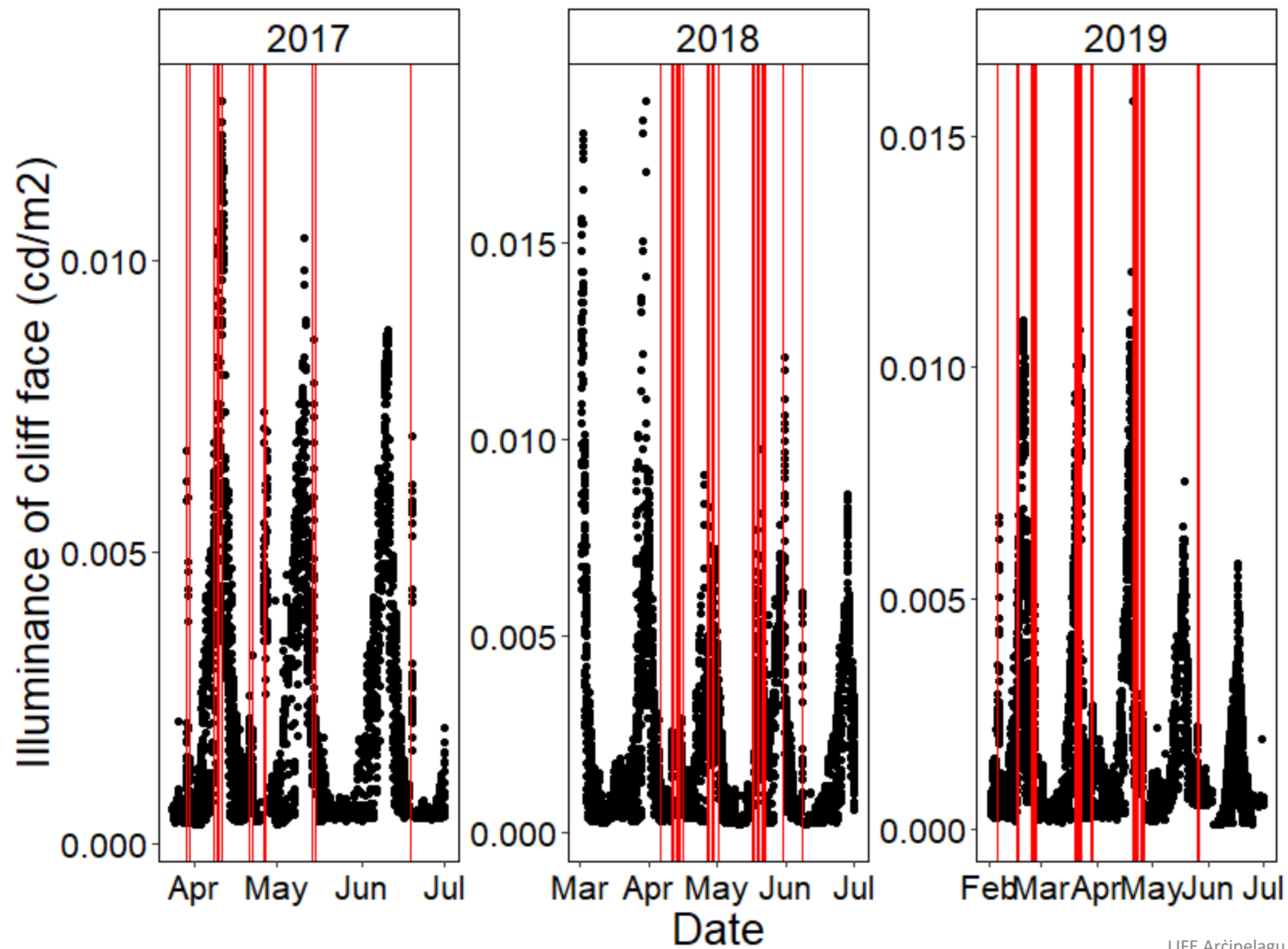
Colony attendance

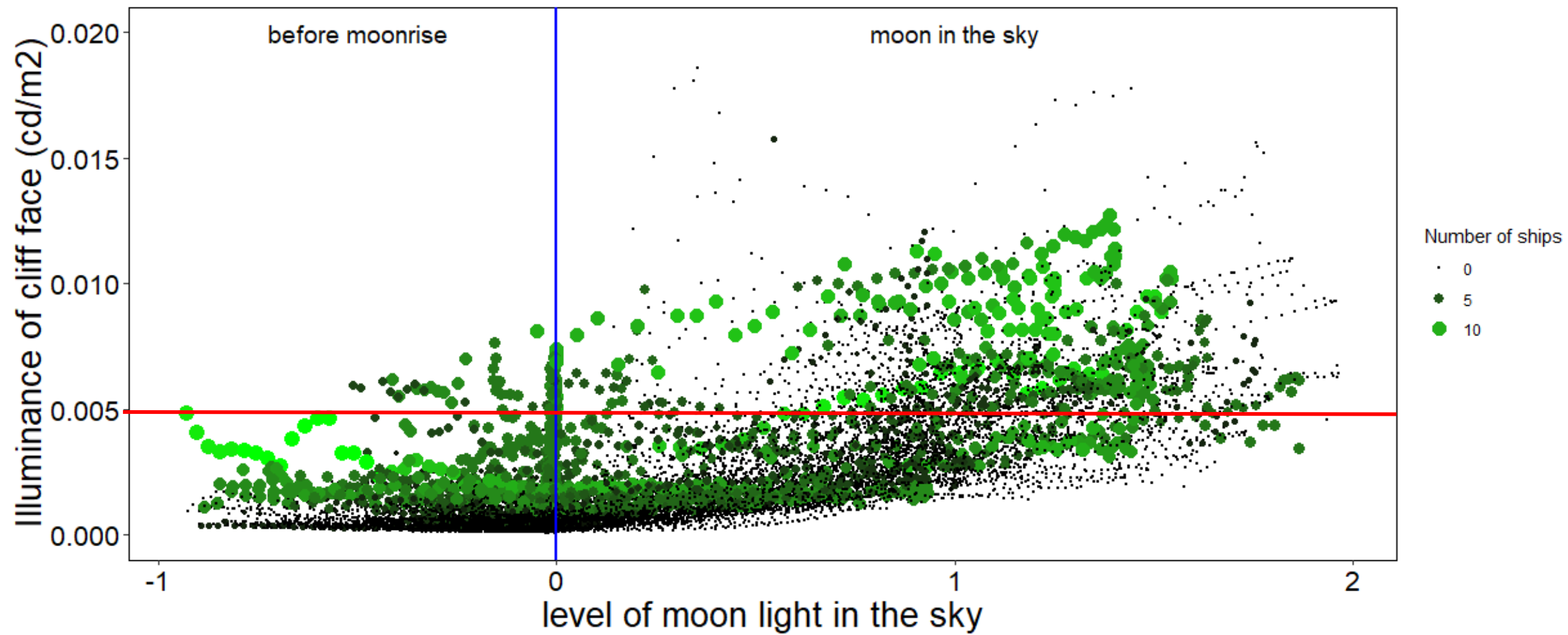
Temporary light pollution

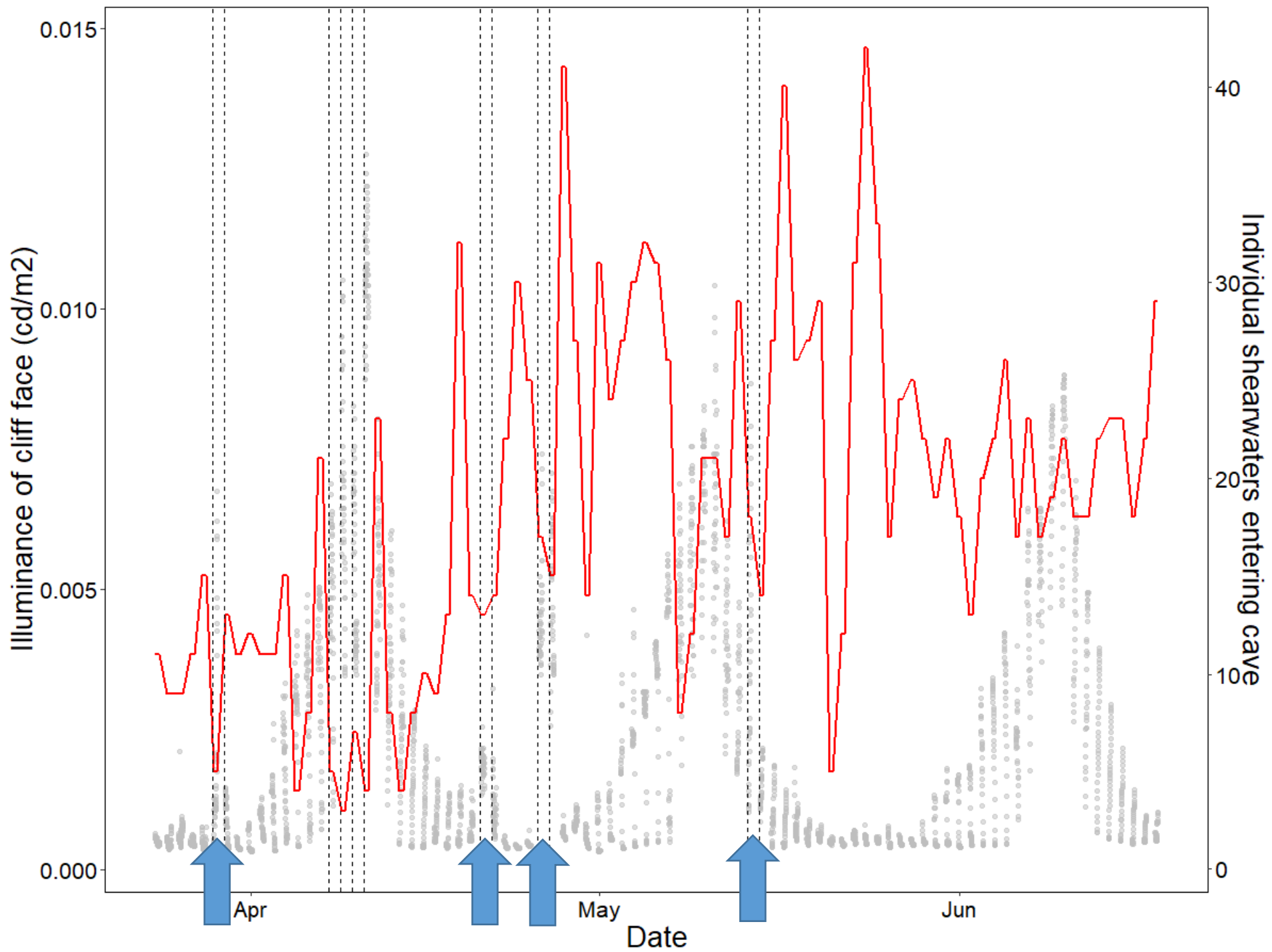












Colony attendance - Permanent light pollution



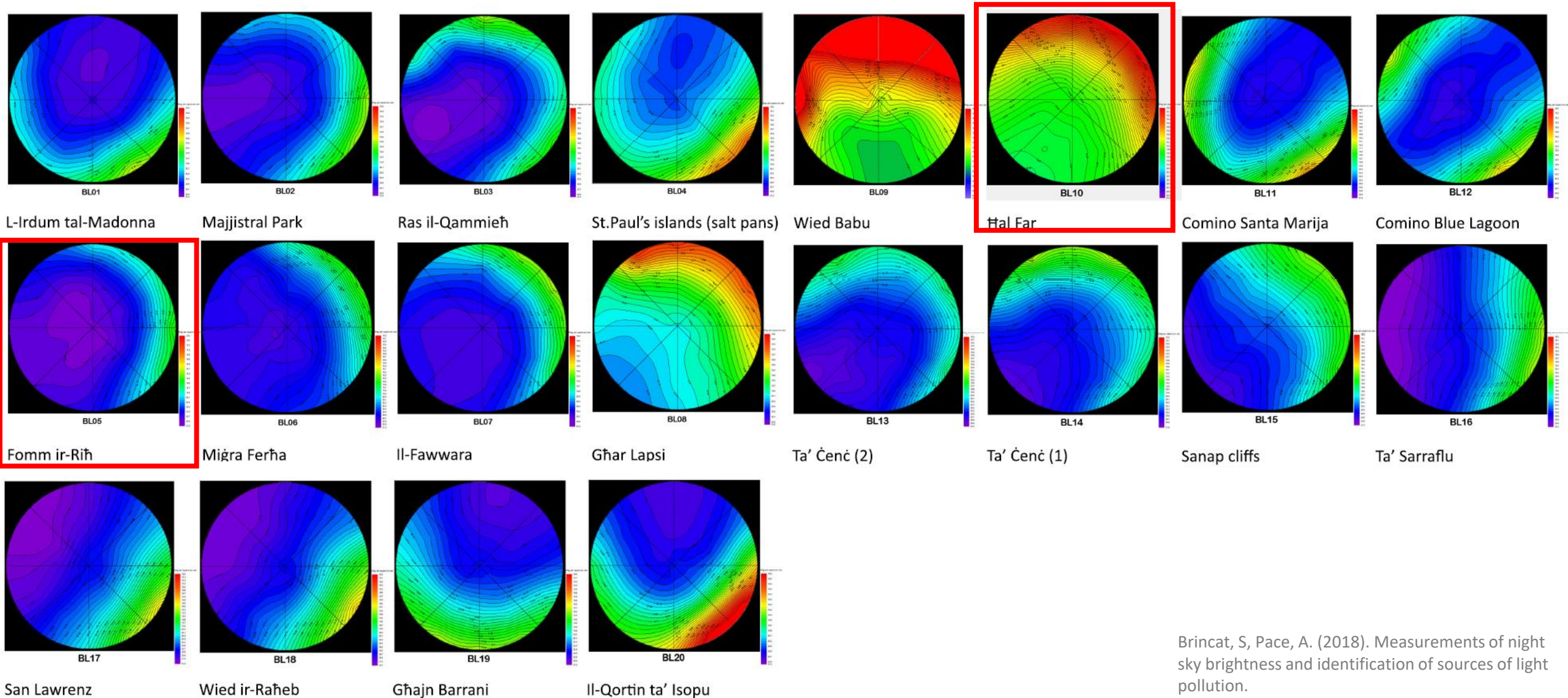
Assessing colony darkness



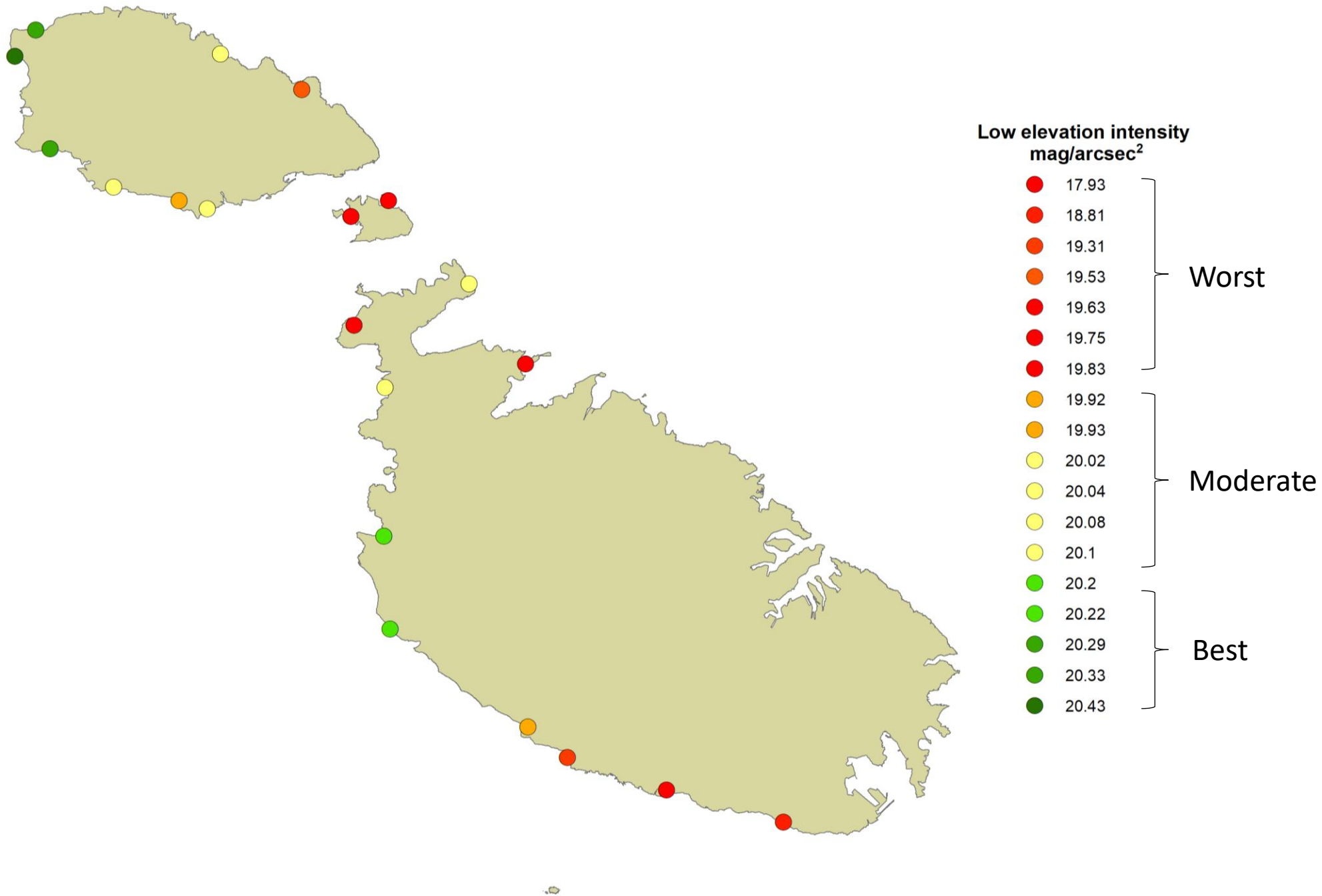
Figure 11.3

Brincat, S, Pace, A. (2018). Measurements of night sky brightness and identification of sources of light pollution.
LIFE Arċipelagu Garnija (LIFE14 NAT/MT/991) Action A2 report. BirdLife Malta

Night sky brightness mosaics



Brincat, S, Pace, A. (2018). Measurements of night sky brightness and identification of sources of light pollution.
LIFE Arċipelagu Garnija (LIFE14 NAT/MT/991) Action A2 report. BirdLife Malta



Drone surveys



Existing problems...



Urban
St. Paul's Bay

Existing problems...



Industrial
Delimara

Existing problems...



Essential Infrastructure
Ćirkewwa ferry terminal

Future problems...



Low-development areas
Armier

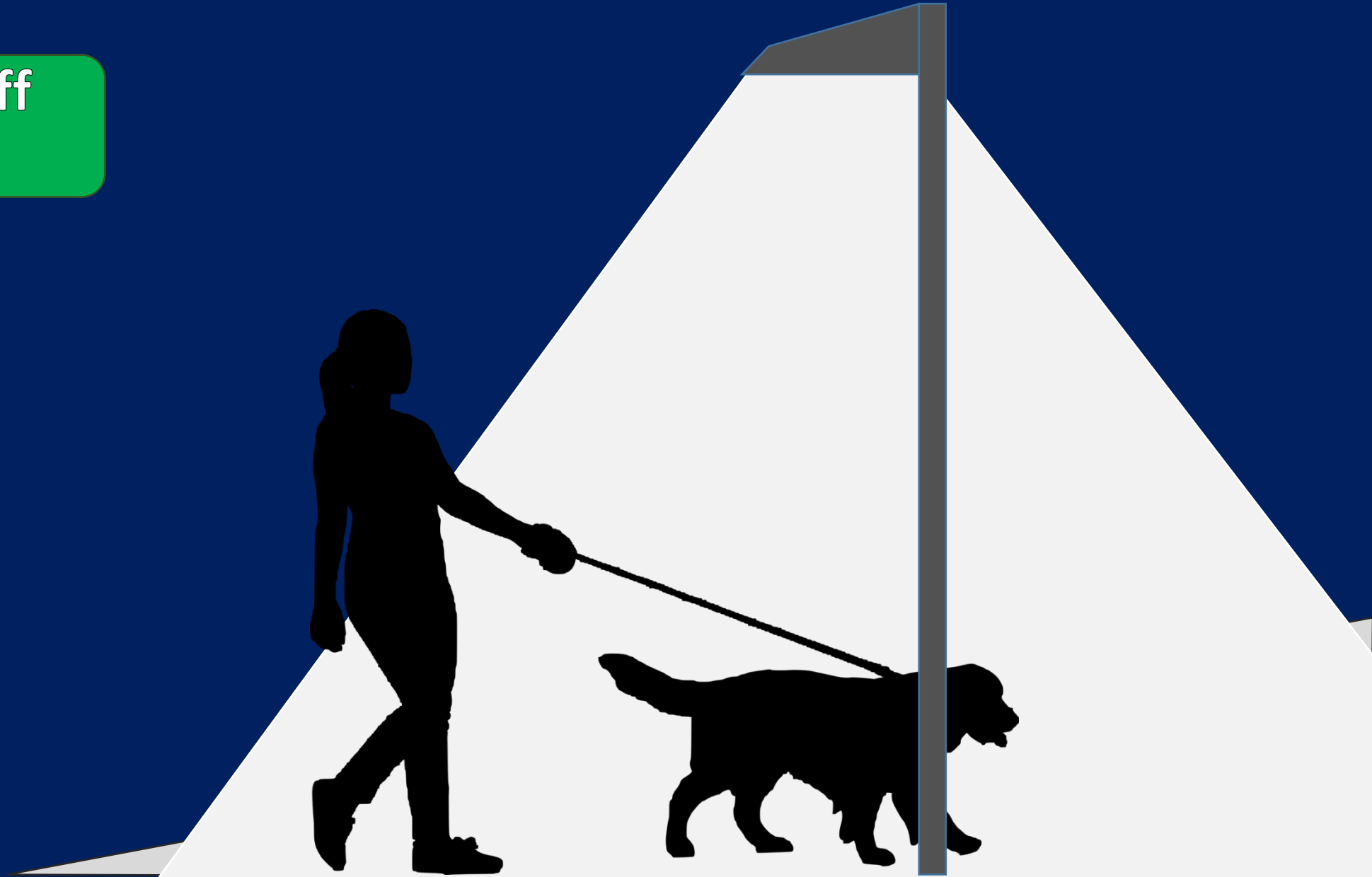
Future problems...

Pre-upgrade urban
Mellieħa



How to mitigate light pollution?

Use full cut-off
fixtures



How to mitigate light pollution?

Keep intensity low



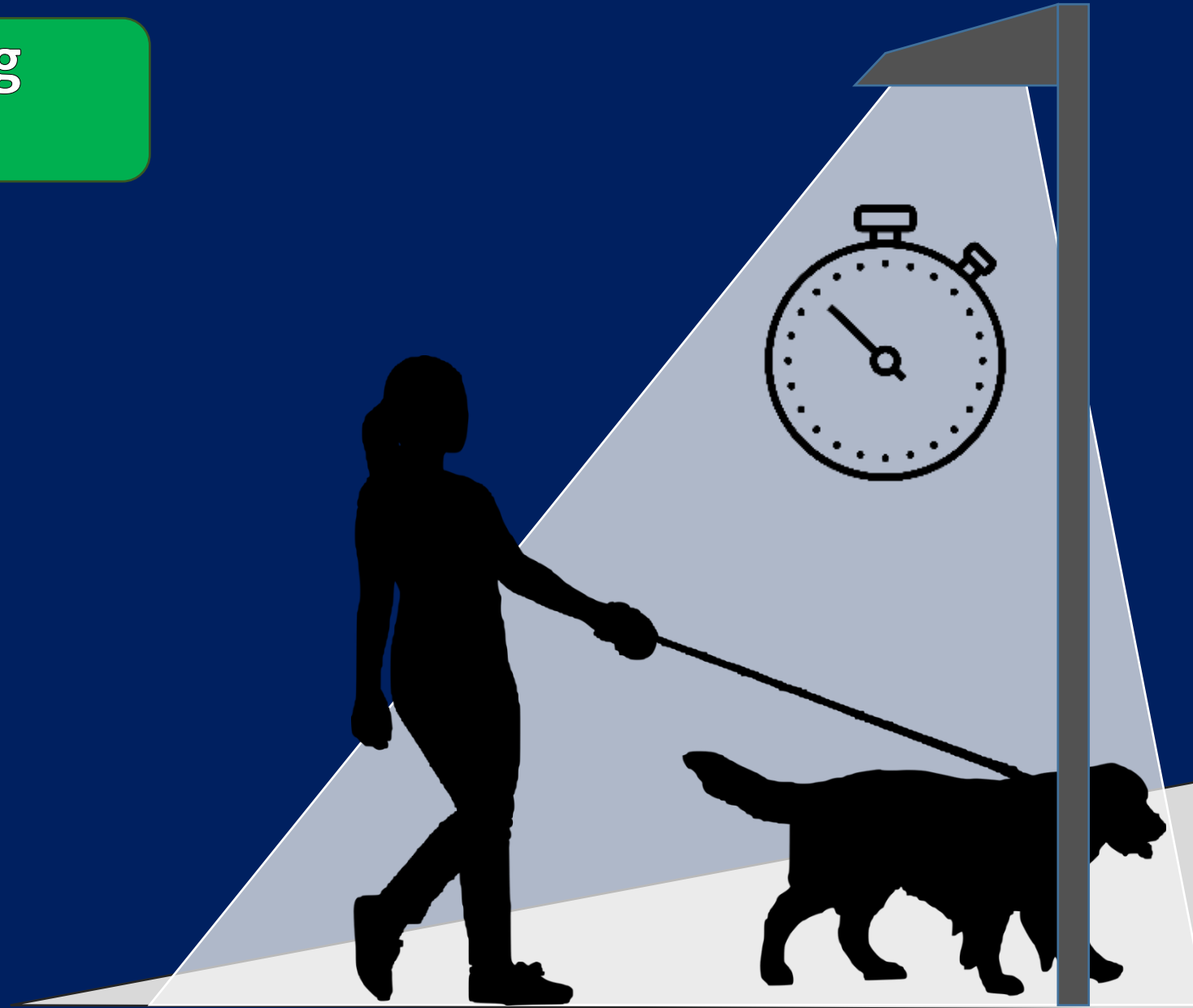
How to mitigate light pollution?

Direct light to
where it is needed



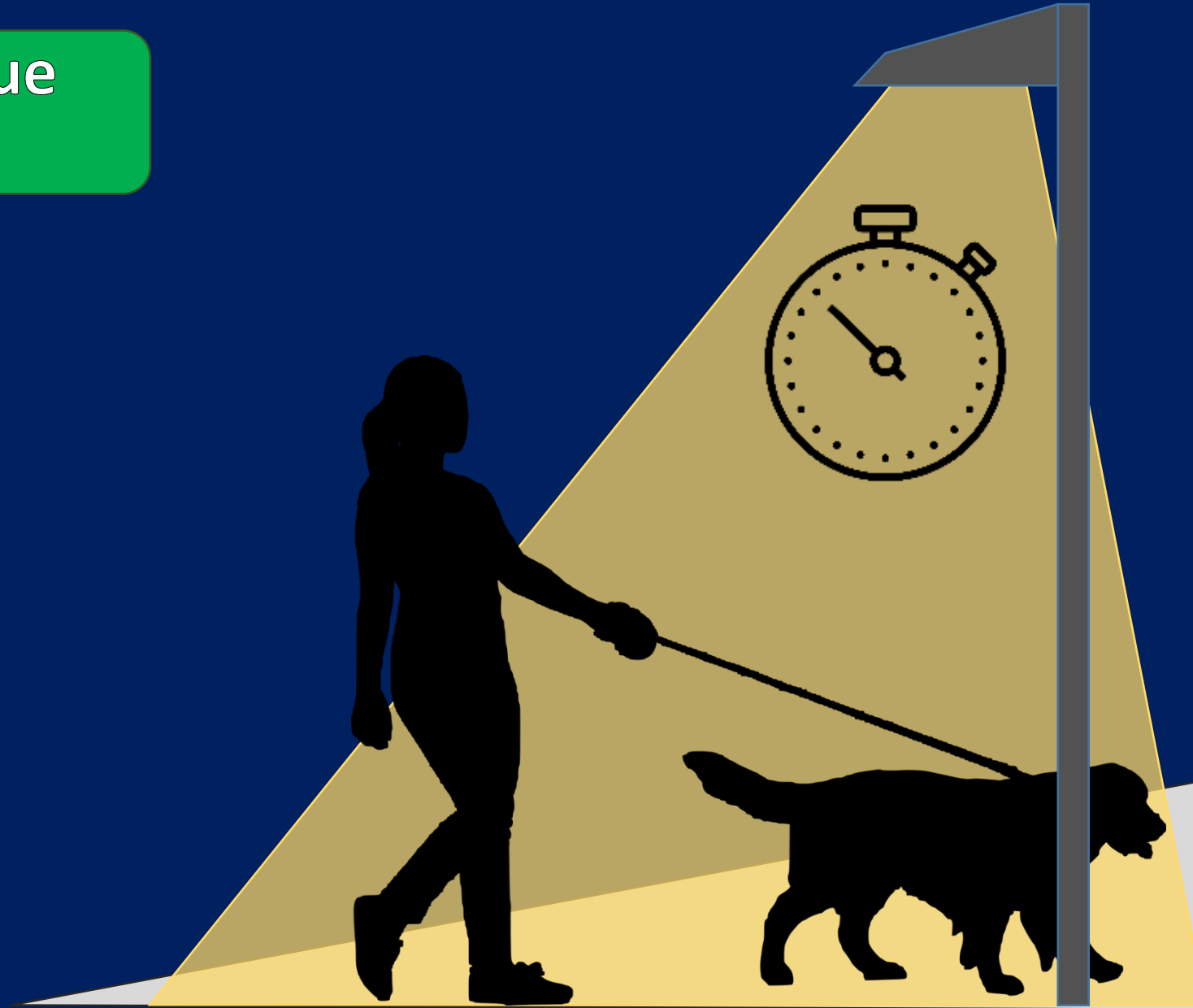
How to mitigate light pollution?

Use lighting
schedules



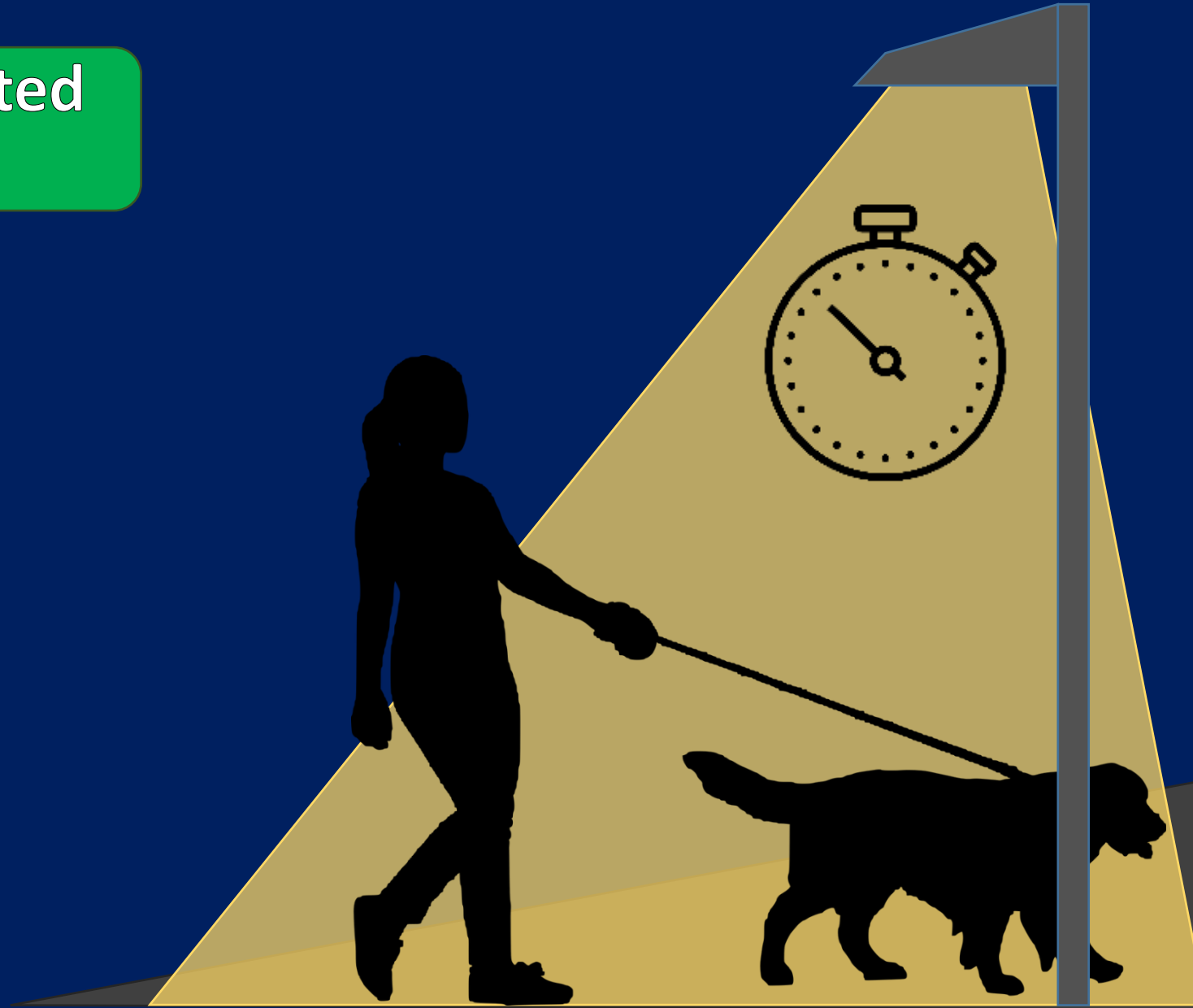
How to mitigate light pollution?

Minimize blue
light



How to mitigate light pollution?

Reduce reflected
light





The town of La Patrie before light pollution mitigation © RICEEM



The town of La Patrie after light pollution mitigation © RICEEM



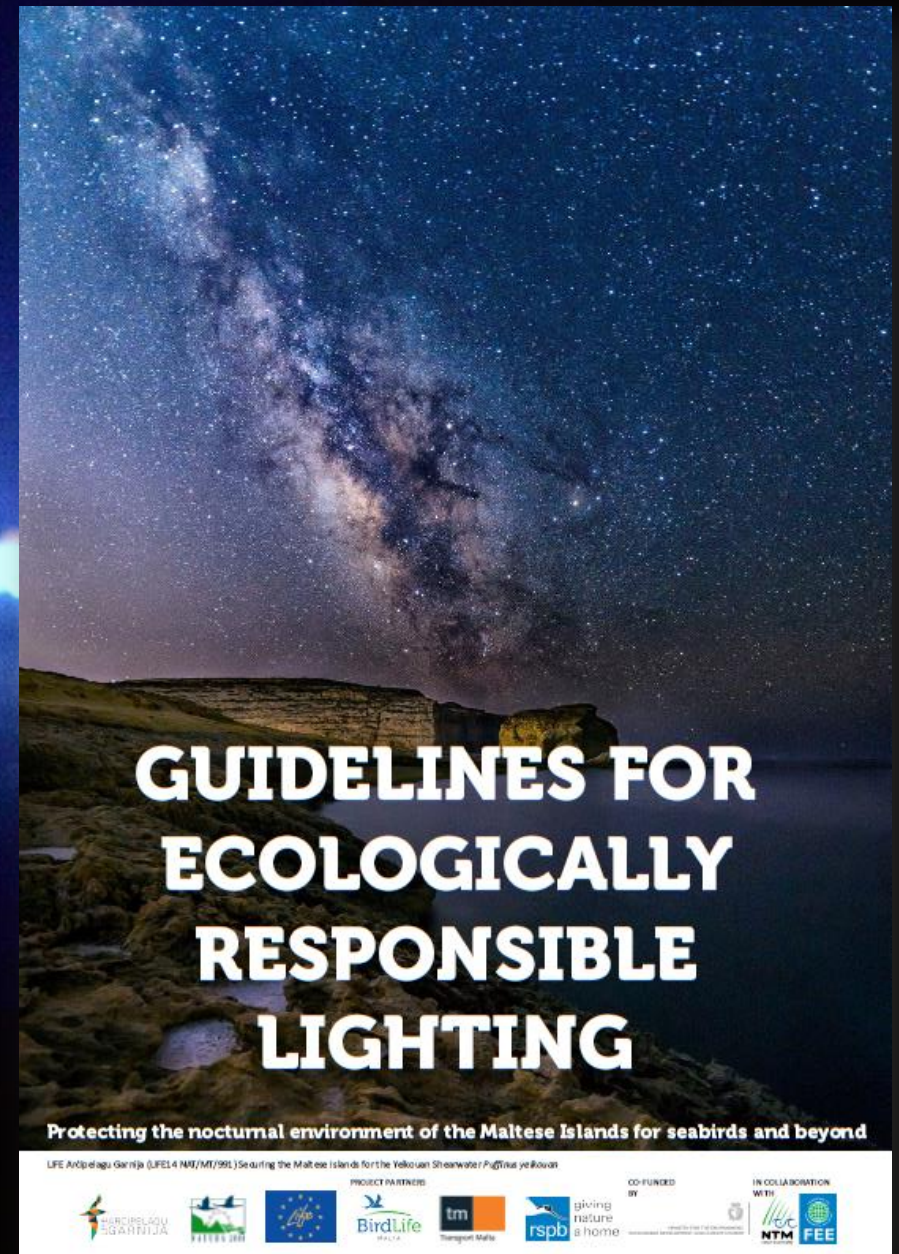
A street in La Patrie before light pollution mitigation © RICEEM



A street in La Patrie after light pollution mitigation © RICEEM

Seabird specific recommendations

- CCT < 3000K in urban areas
- CCT < 2700K in rural and protected areas
- Prohibit non-essential lighting of the marine environment
- Reduce visual impact of coastal luminaires as viewed from the sea
- Seasonal restrictions on lighting



Stakeholder engagement

Government Agencies



Local Councils



Il-Munxar



MELLIEHA



KUNSILL LOKALI
SAN PAWL IL-BAHAR



KUNSILL LOKALI
BIRŻEBBUĠA



KUNSILL LOKALI QRENDI

NGOs



Private Companies



Advocating changes to legislation

- Review of current legislation
- Design new legislation proposals to;
 - Reduce light pollution,
 - Safeguard breeding habitats,
 - Reduce light-induced mortality.

Without compromising public safety and security

DESKTOP REVIEW OF CURRENT POLICY AND LEGISLATION ON LIGHT POLLUTION

James Crymble

October, 2018



LIFE Arcipelagu Garnija (LIFE14 NAT/MT/991)

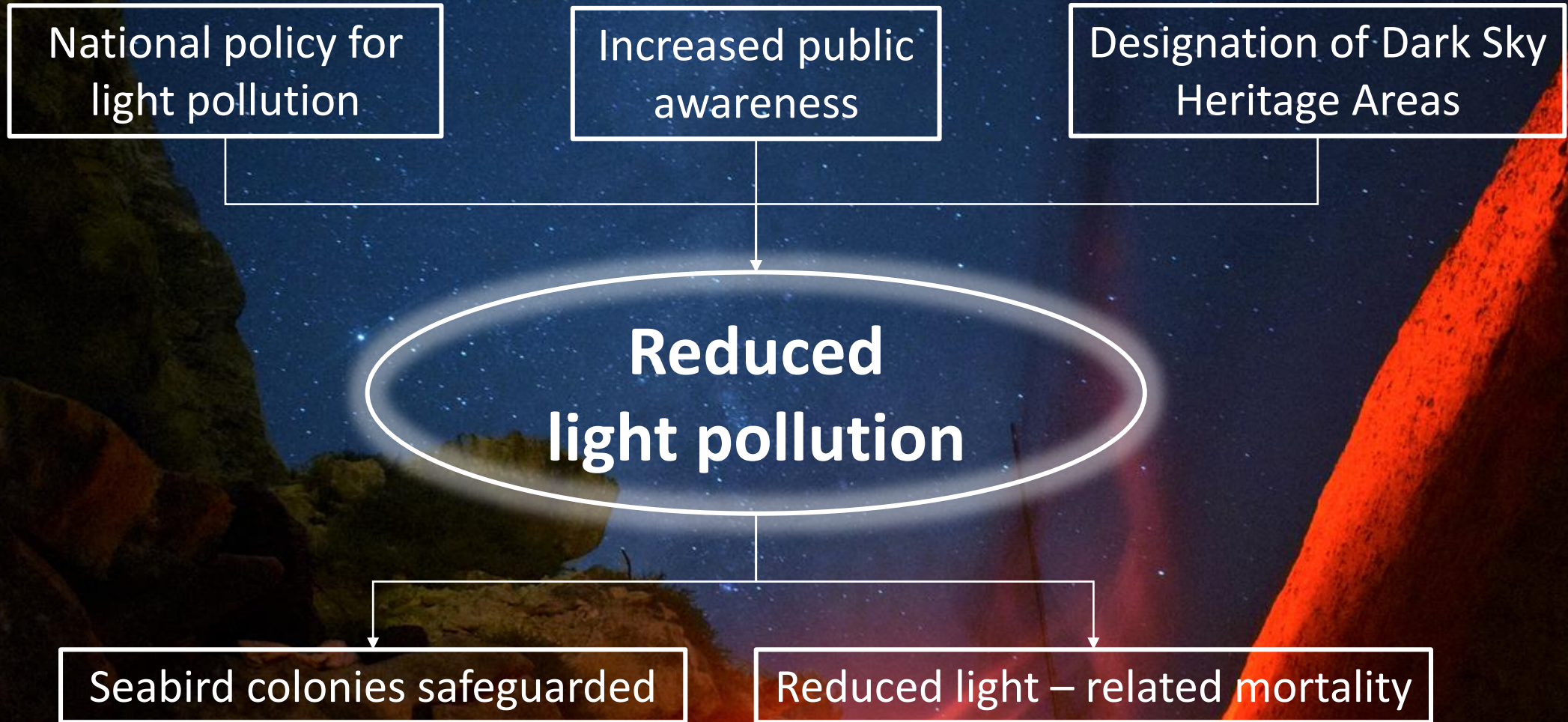
Securing the Maltese Islands for the Yelkouan Shearwater *Puffinus yelkouan*.
Action C.2: Address and reduce current light pollution affecting *P. yelkouan* colonies utilising policy and legislation



RECOMMENDATIONS FOR CHANGES TO POLICY AND LEGISLATION ON COASTAL LIGHT POLLUTION



The future?



Questions?



Special thanks to Alexei Pace, Stephen Brincat, Joseph Caruana and Michael Nolle for their advice and support and all members of the public that helped to recover grounded birds