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The status of the European Roller in Cyprus

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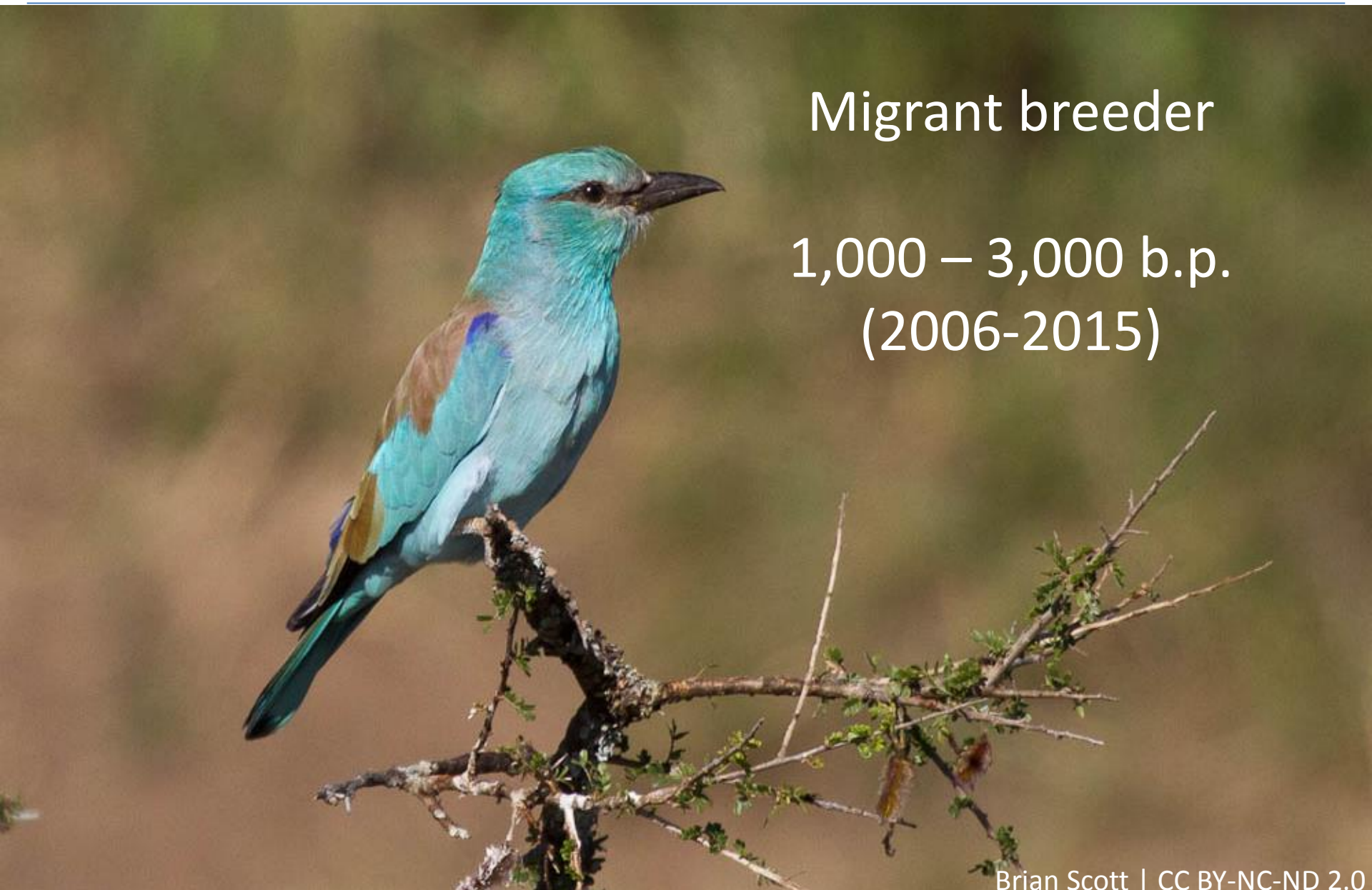


Migrant breeder

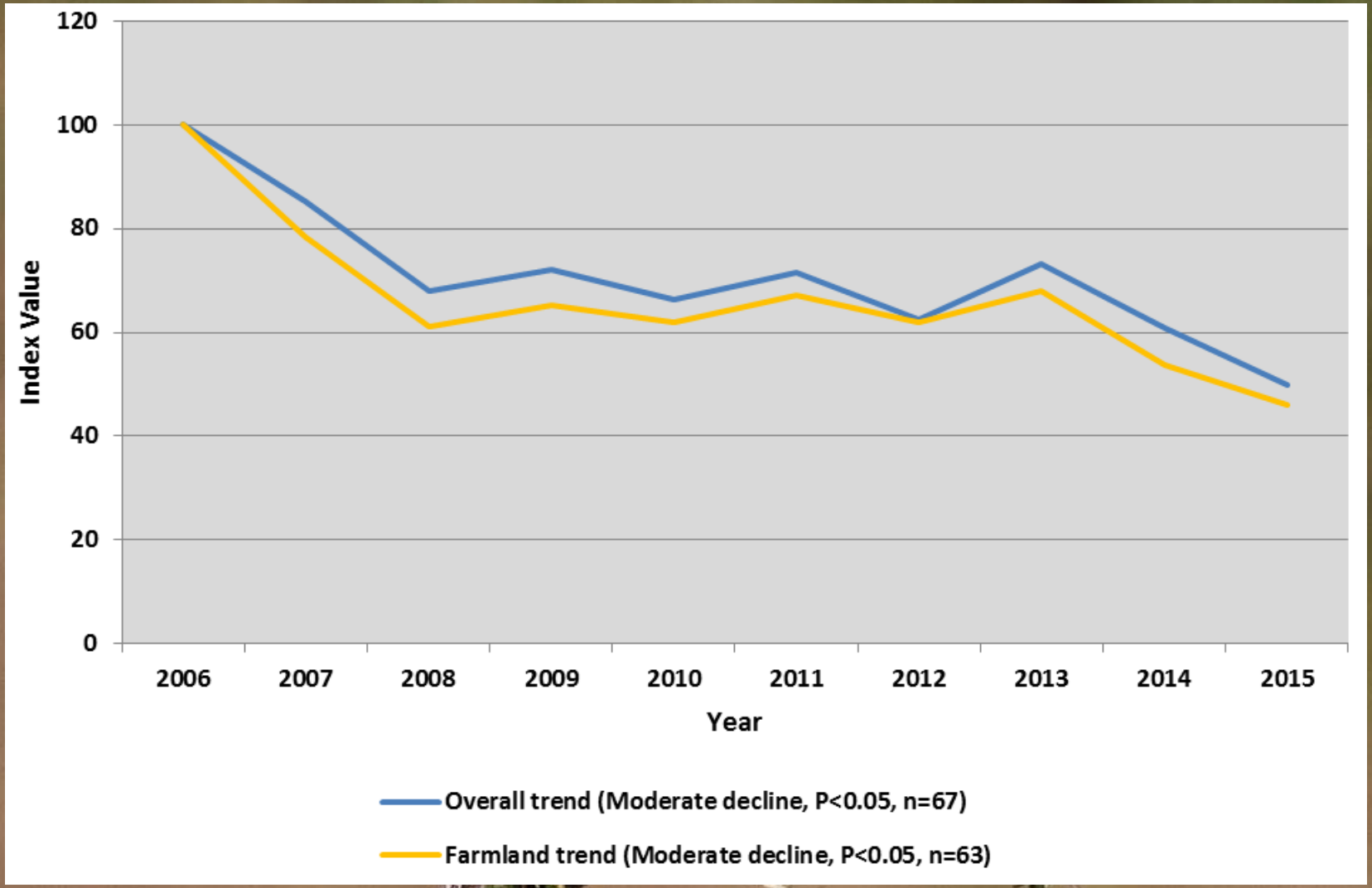
1,000 – 3,000 b.p.
(2006-2015)

- Do you have breeding rollers in your country? If not, please specify the year of the last breeding activity.
- Yes, European Rollers still breed in Cyprus.

- Check the range states table.
- Information from 2008 Action Plan is correct: They are present during breeding and migration, but not wintering.

- Population size and trend between 2000-2016 in your country. Please check and update the table if necessary.
- Breeding pairs: 1000-3000; Quality: Medium; Years: 2006-2015
- Trend: Moderate decline; Quality: Medium

Population trend 2006 – 2015



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Threats (critical)

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Threats (high)

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Threats (medium)

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Long-term threats as yet unsolved

Relatively new threats

- What are the main threats for rollers in your country?

- Please list in the order of critical, high, medium.

Critical - a factor causing or likely to cause very rapid declines and/or extinction;

Intensification of agriculture (monocultures, pesticide use, loss of landscape features, overgrazing).

Abandonment of agriculture (loss of mosaic).

Habitat degradation, fragmentation, loss (development: isolated housing, tourism, golf courses, wind and solar energy).

High - a factor causing or likely to cause rapid decline leading to depletion;

Illegal trapping and killing of birds.

Spraying of insecticides in streams and pools.

Medium - a factor causing or likely to cause relatively slow but significant declines.

Disturbance from recreation activities and high road density.

Disturbance from quarry activity.

Disturbance from training of hunting dogs.

Inappropriate water management (abstraction, dam building, changes to river beds).

- Please list any long term threats that have no solution yet?

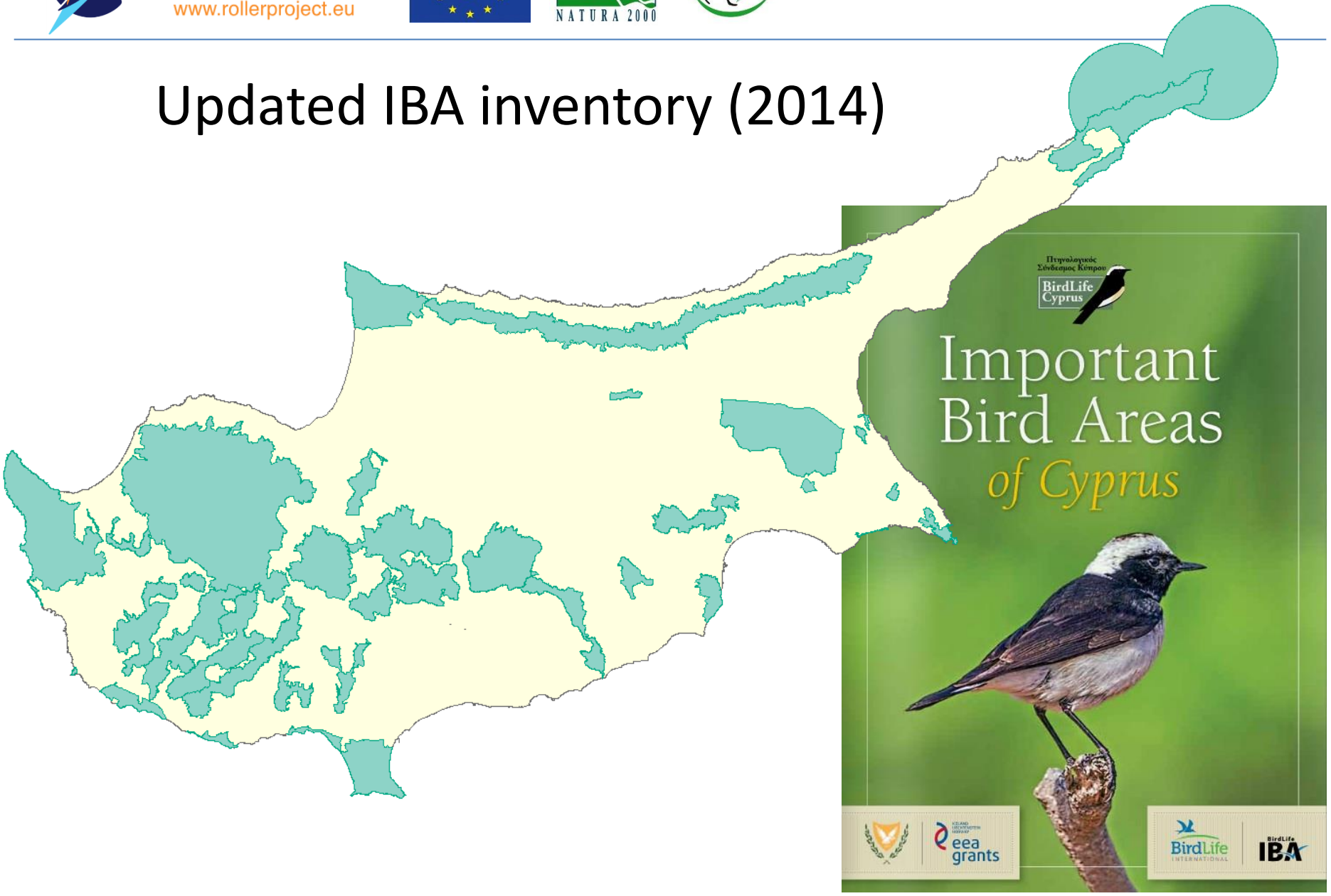
Changes in agricultural practices. Habitat loss.

- Please list any threats that started fairly recently?

Development for wind and solar. Massive tourism (golf resort) developments.

- Please list any threats that have been solved/or gotten better since the last ISAP (2008).

Updated IBA inventory (2014)



- Have there been any changes in your country regarding the policies and legislations relevant to the management of the species? What percentage of the breeding territories are protected?

- No changes in legislation
- Updated IBA Inventory (2014)
- *c.* 70% of area of IBAs in non-occupied territory triggered by Roller (top 5 breeding sites [C6/B2] + sites that regularly hold significant numbers [A1/C1]) covered by SPAs

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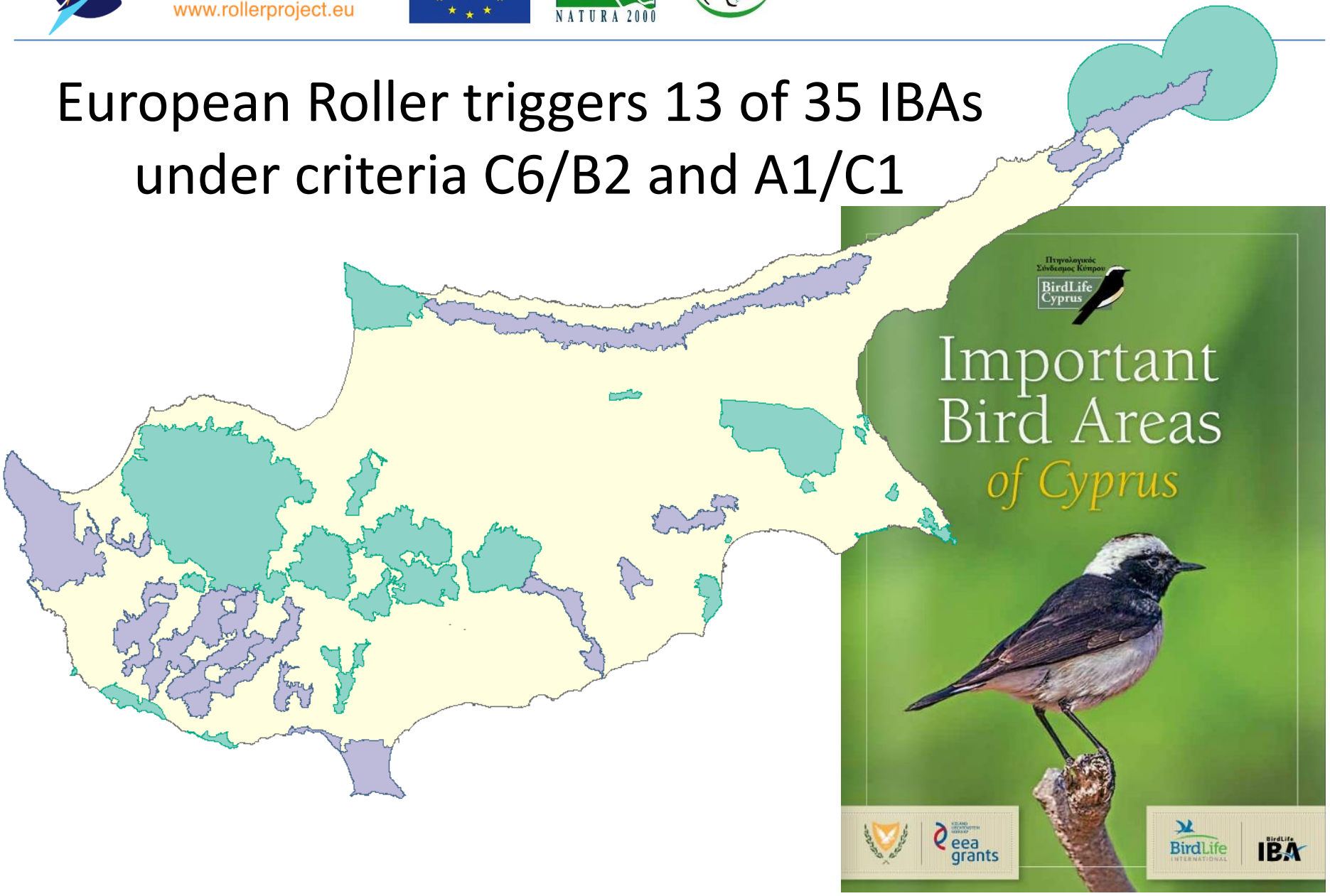
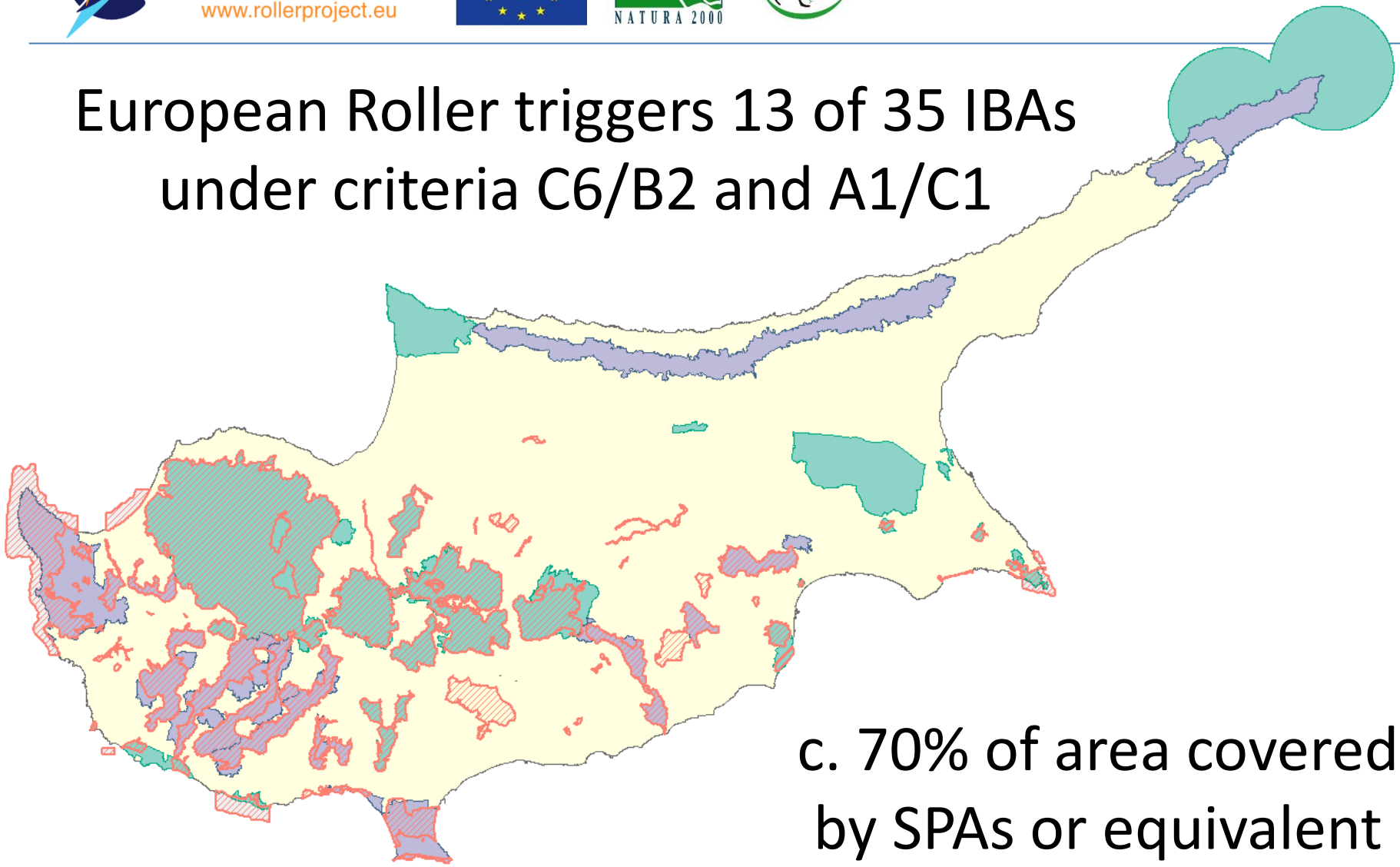
European Roller triggers 13 of 35 IBAs under criteria C6/B2 and A1/C1



European Roller triggers 13 of 35 IBAs under criteria C6/B2 and A1/C1



c. 70% of area covered by SPAs or equivalent

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Roller goals

- Halt population decline.
- Increasing population over long term

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Conservation activities

- BirdLife Cyprus monitoring programmes
- Game & Fauna Service monitoring programme
- Game & Fauna Service nest boxes in SPA Potamos Paramaliou
- Turkish-Cypriot Society for the Protection of Birds and Nature (KUŞKOR) nest boxes in IBAs Mesaoria Plain and Mia Milia

- Please list the recent conservation activities (national species action plans, monitoring programmes, habitat restorations, research programmes) that are relevant to the species within your country.

- Monitoring by BirdLife Cyprus (species-specific and as part of Common Bird Monitoring Scheme)
- Monitoring by Game and Fauna Service (also shows decline)
- GFS Nest boxes in SPA in south: Potamos Paramaliou (IBA triggered by Roller)
- Turkish-Cypriot Society for the Protection of Birds and Nature (KUŞKOR) installed nest boxes in IBAs Mesaoria Plain and Mia Milia (areas with not typical habitat, but potentially high food availability)
- LIFE – FORBIRDS: 'Improving lowland forest habitats for Birds in Cyprus' (LIFE13 NAT/CY/000176)

  SPAs in southeast: Koshi – Pallourokampos, Potamos Panagias Stazousas and Kavo Greko

  Actions: Installation of nest boxes. Creation of traditional agricultural fields (no-input food plots and orchards) and water provision. Removal of invasive non-native species (acacia) and habitat restoration creating clearings. Intensive patrol programme for enforcement of legislation against illegal trapping and killing or birds.

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Conservation activities

- LIFE – FORBIRDS (LIFE13 NAT/CY/000176)

'Improving lowland forest habitats for Birds in Cyprus‘

- SPAs in southeast:

Koshi – Pallourokampos, Potamos Panagias Stazousas and Kavo Greko

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Conservation activities

- LIFE – FORBIRDS (LIFE13 NAT/CY/000176)
  - Actions:

- Installation of nest boxes.
- Creation of traditional agricultural fields (no-input food plots and orchards) and water provision.
- Removal of invasive non-native species (acacia) and habitat restoration creating clearings.
- Intensive patrol programme against illegal killing of birds.

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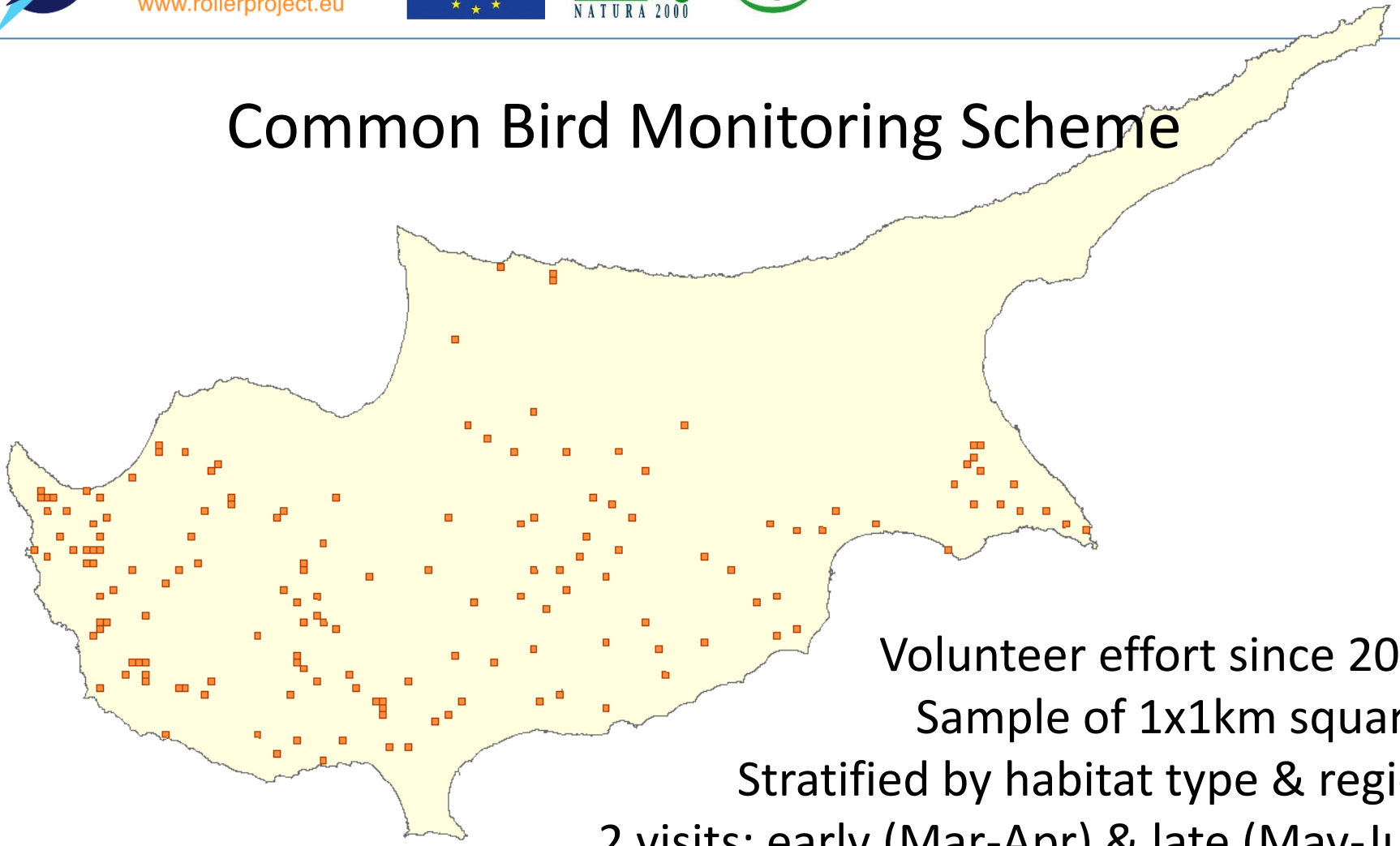
Common Bird Monitoring Scheme



Volunteer effort since 2006

Sample of 1x1km squares

Stratified by habitat type & region

2 visits: early (Mar-Apr) & late (May-Jun)

Walked line transect *c.* 1km long

Distance sampling: all birds seen/heard recorded in distance bands

- Please explain your monitoring methods.

- Common Bird Monitoring Scheme: Volunteer effort since 2006
- Sample of 1x1km squares stratified by broad habitat category (Forest, Scrub, Phrygana, Groves, Mosaic, Vines, Cereals and Towns) and with even geographical coverage.
- Early (Mar-Apr) & late (May-Jun) surveys, in the 4 hours after sunrise
- Walked line transect *c.* 1km long
- All birds seen or heard recorded within distance bands.

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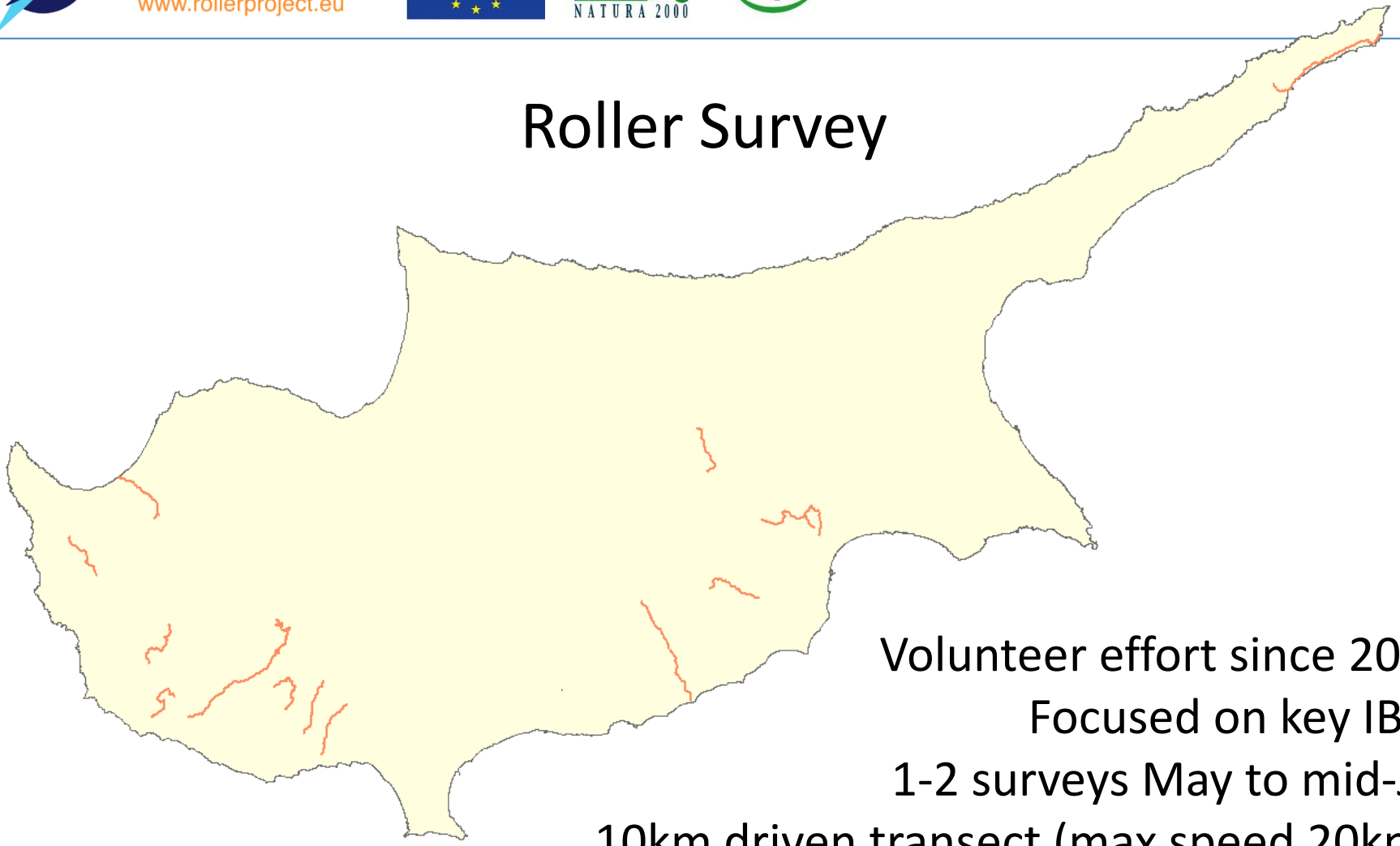
Roller Survey



Volunteer effort since 2013

Focused on key IBAs

1-2 surveys May to mid-Jul

10km driven transect (max speed 20kph)

Stop every 2km for 5min point count in distance bands

- Roller surveys: volunteer effort since 2013
- Focused on key IBAs, but also outside IBAs
- 10km driven transect (max speed 20kph)
- Stop (switch off engine) every 2km for 5min point count in distance bands
- 1-2 surveys May to mid-Jul (at least 2 weeks between surveys), starting at least 1 ½ hours after sunrise and ending at least 1 hour before sunset

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New science

Habitat change and climate effects on the European Roller (*Coracias garrulus*), implications for conservation

Philip Saunders, PhD (2016)

- Please list any new scientific findings that could affect the conservation of the species.

- Phil Saunders' PhD:

- The first slide details the results of the Nanofix GPS loggers we deployed in 2015. We tagged 10 birds, but only got data from 6 due to nest predation and abandonment. The figures show the 90% MCPs of the 6 birds, with the tag/MCP data tabulated in the next figure. It's worth pointing out that Androlikou area (Birds 2,3, and 4) possibly has the highest breeding density of Rollers anywhere in the world too. The final figure on the first slide depicts the Manley selection ratios (based upon fix locations within the MCPs). Any value non-overlapping one indicates selection (>1) or avoidance (<1) of a particular habitat type. Only those ratios with n=/>5 can be completely trusted, and any error bars overlapping 1 indicate no clear consensus. The Rollers in the study therefore strongly avoided urban areas, ploughed fields, and scrubland, and used grassland as available (no clear preference/avoidance). There are indications of preference for fallow, and potentially cereal and woody fruit crop, areas, but we can't be sure based on the results.

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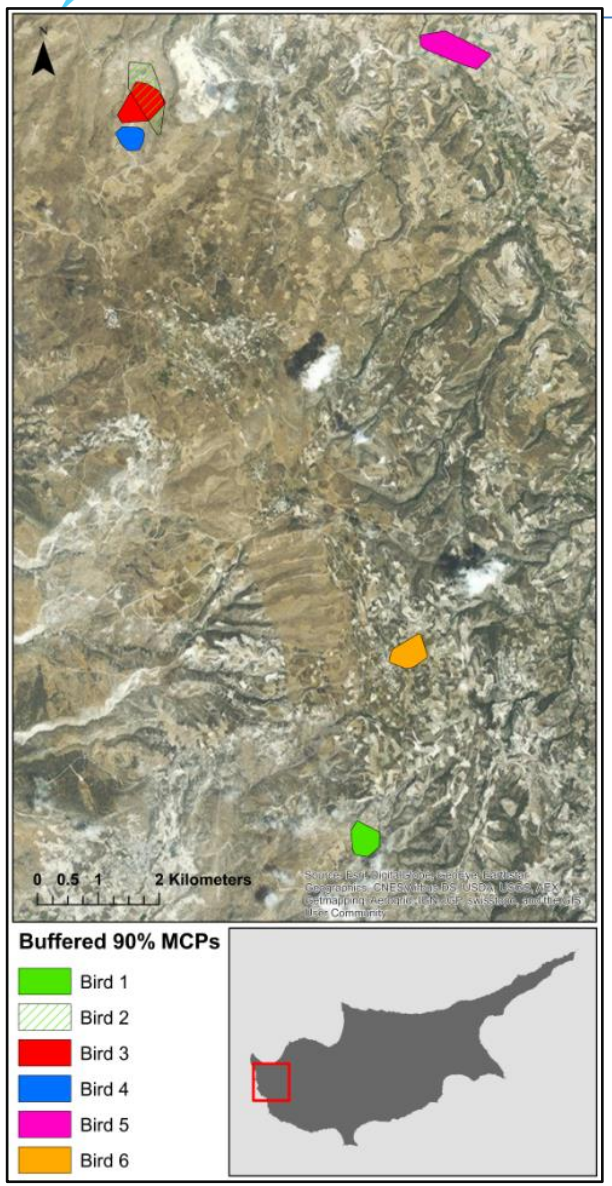


Fig. 1: Chick-rearing period 90% MCPs of 6 GPS-tagged Rollers in western Cyprus in 2015

Bird ID	Tracking period	No. data-days	No. of fixes	Buffered 90% MCP area (ha)	Maximum Foraging Extent (MFE) from nest site to buffered 90% MCP boundary (m)
1	24th May to 7th June	8	26	20.56	421.21
2	6th June to 13th June	8	38	43.22	835.21
3	10th June to 16th June	6	37	33.84	653.32
4	12th June to 4th July	21	42	13.89	604.04
5	9th June to 19th June	10	30	38.25	643.21
6	8th June to 18th June	10	46	22.72	297.61
Mean		10.5	36.5	28.75	575.77

Fig. 2: Tag data and MCP area for each of the 6 Rollers

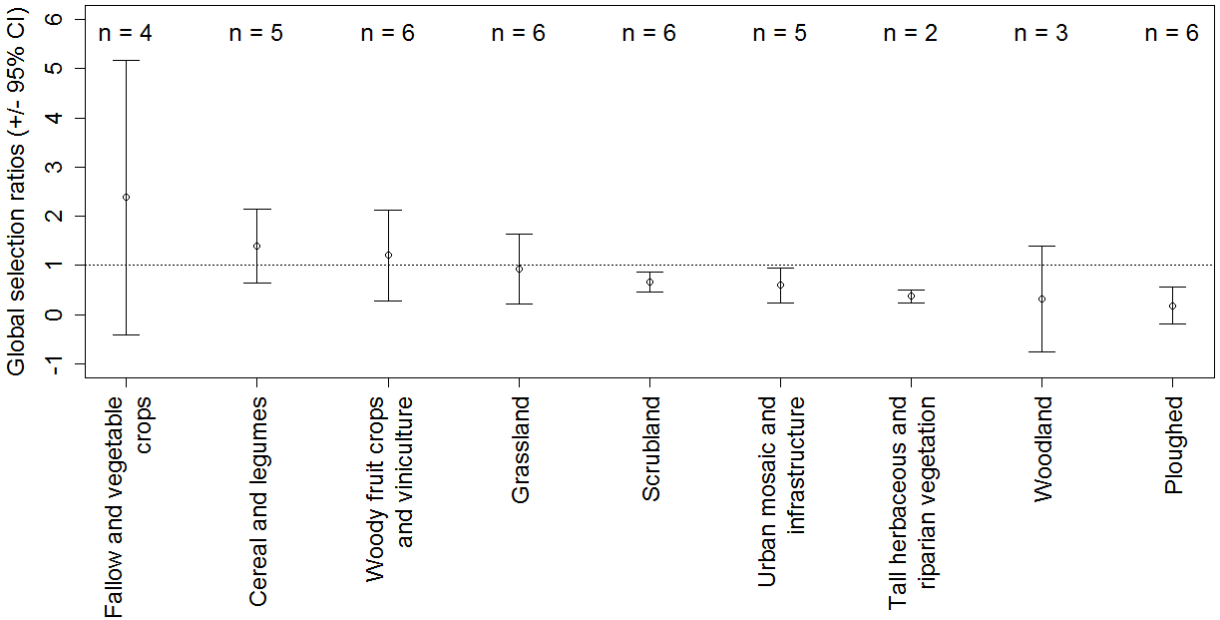


Fig. 3: Manly Selection Ratios for 9 habitats located within the 6 Roller MCPs

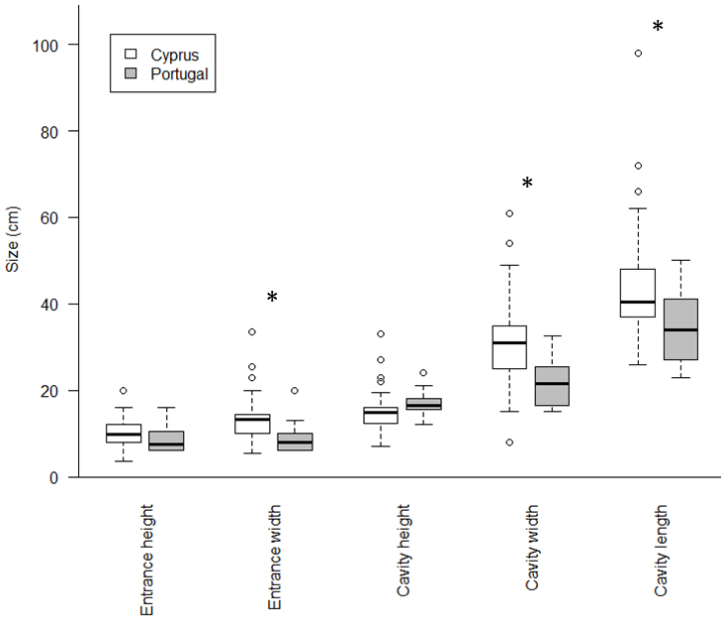
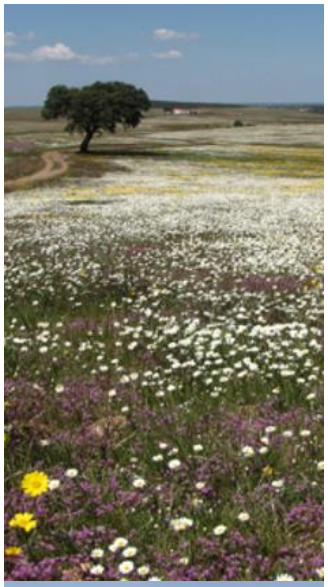
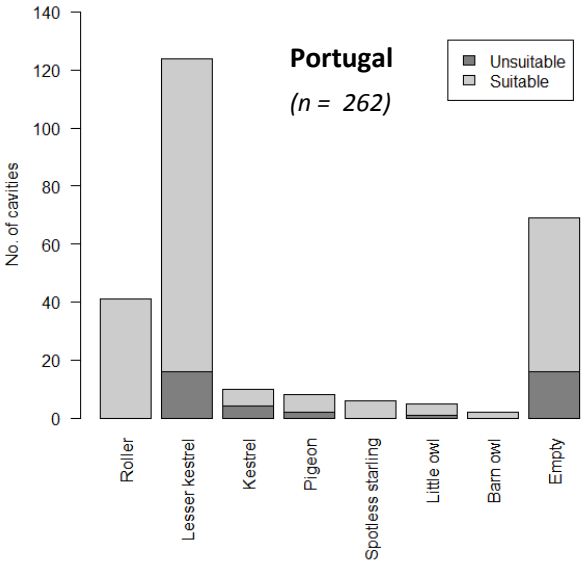


Fig. 4: Comparison between internal parameters of Roller occupied nest cavities in western Cyprus and southern Portugal (indicate a significant difference between the parameters of the 2 locations at p<0.05).*





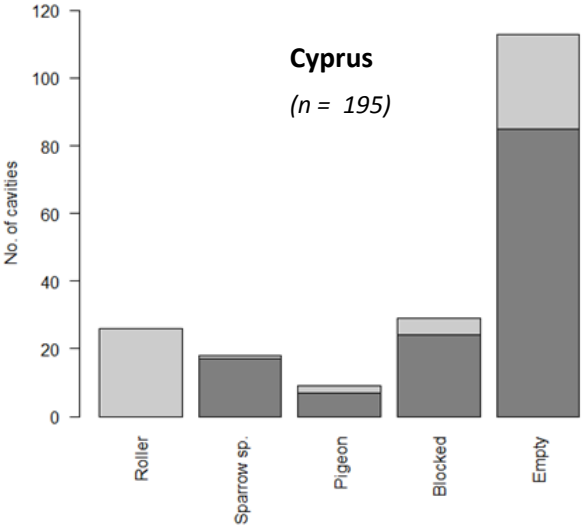


Fig. 5: Cavity occupation by species within southern Portugal and western Cyprus. All non-Roller occupied cavities were identified as suitable for use by Rollers if all internal and external parameters fell within the range of those exhibited by Roller-occupied cavities within the respective study area.

- The second slides details the results of a comparison study between nest site selection by Rollers in western Cyprus and southern Portugal in 2014/15. A range of internal and external parameters were measured, with Cypriot birds utilising nest holes with wider entrances, and wider/longer internal cavities, than Rollers in Portugal (the first figure). The second figure details the results of cavity occupancy surveys for both sites, listing the number of Roller and competitor occupied cavities. Each cavity is identified as being either suitable or unsuitable for use by Rollers based upon whether it's full range of measured parameters fall within the range of confirmed Roller occupied holes within the respective study location (a relatively broad brush criterion, admittedly). Results suggest that nest site competition may be an issue in Portugal, whereas nest site limitation is of potential importance in Cyprus.

- Modelling data suggests that rural villages may be acting as ecological traps for Rollers.

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Horizontal measures needed to address threats across Cyprus and enable European Roller population recovery

... LIFE project?

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Objective:

Stop the decline of the European population by 2020 and promote conditions that will help populations to recover to favourable conservation status and will allow for range expansion in Europe

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Thank you