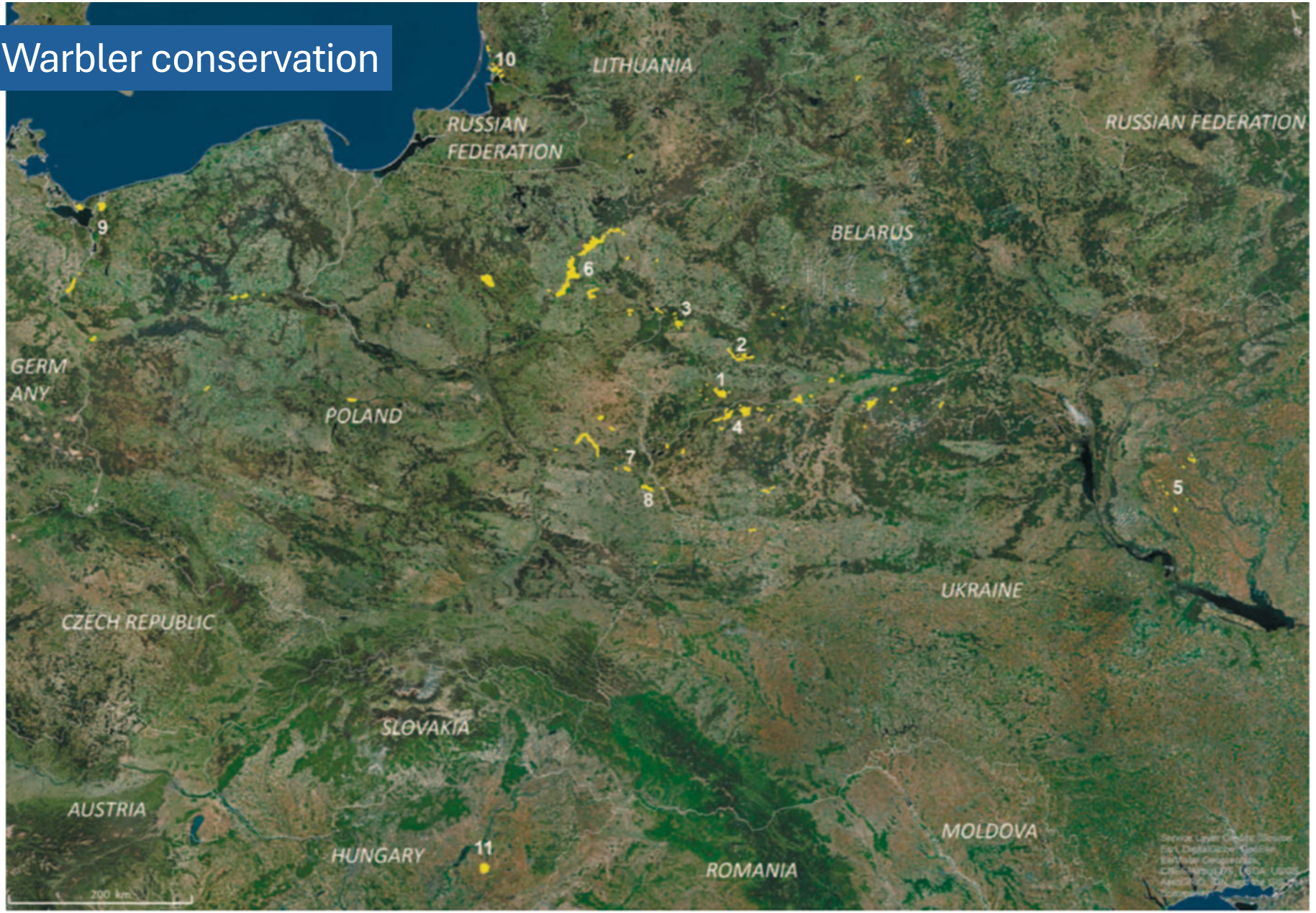
The challenge to restore the Pomeranian population – a population viabibilty analysis

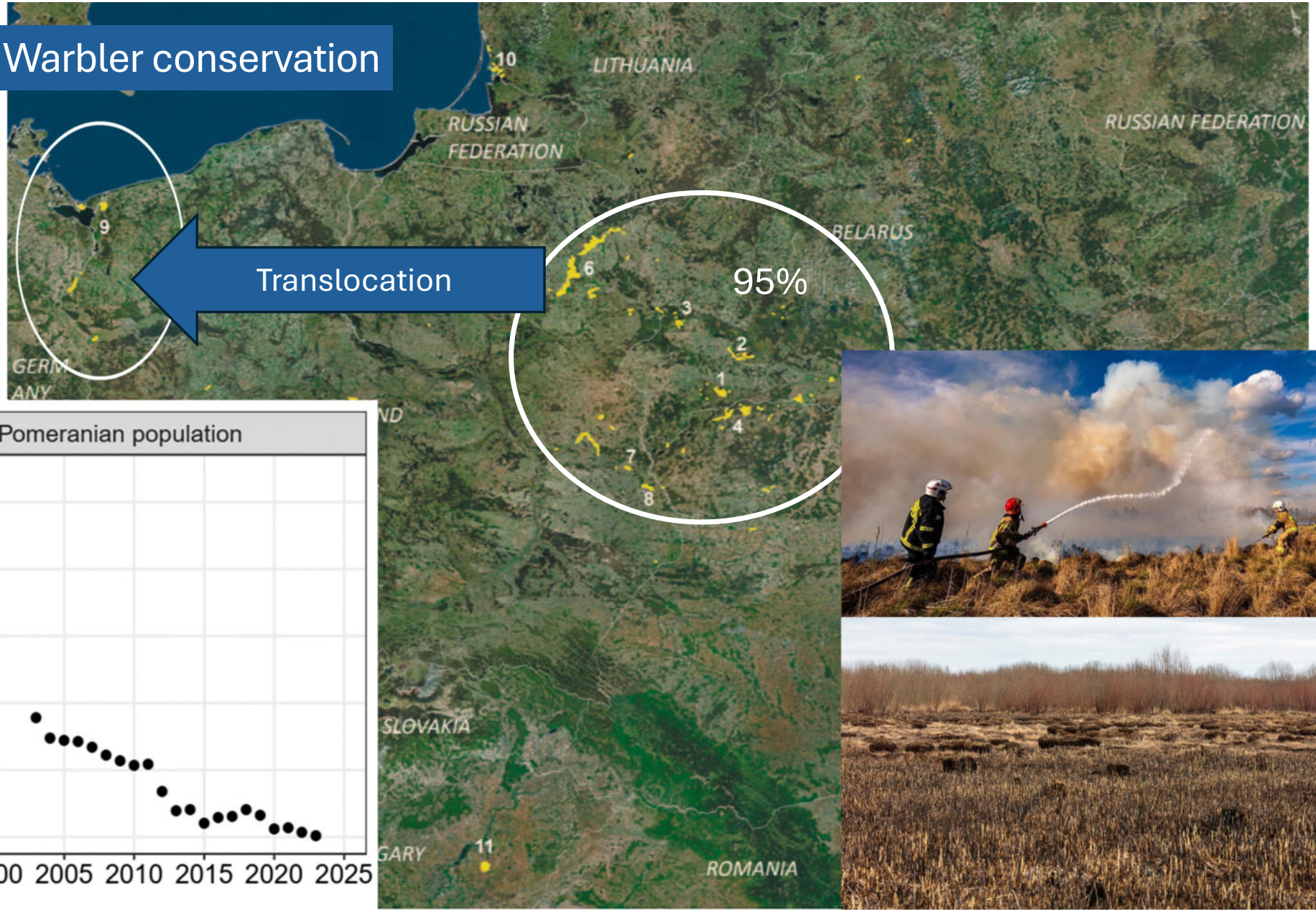
Susanne Arbeiter • Žymantas Morkvėnas • Jaume A. Badia-Boher • Steffen Oppel

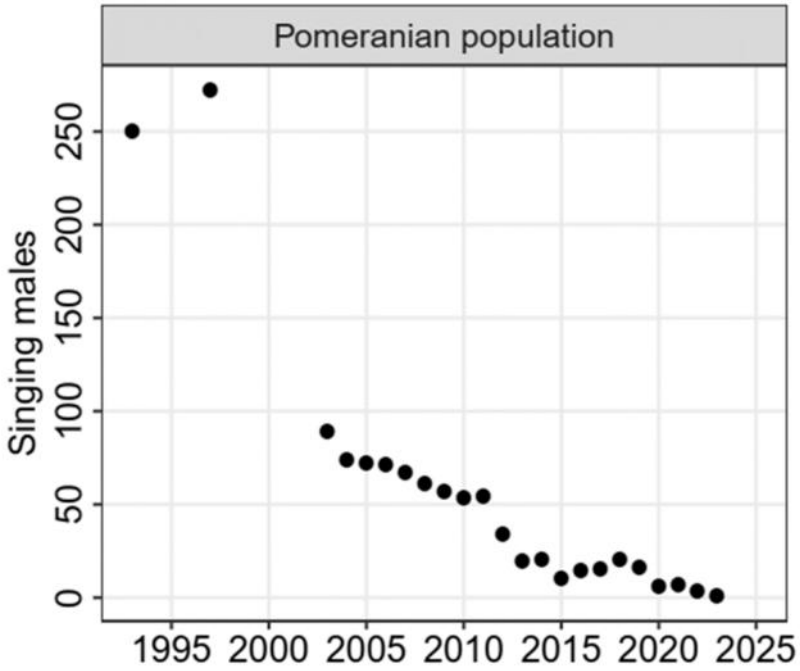
Co-funded by the European Union

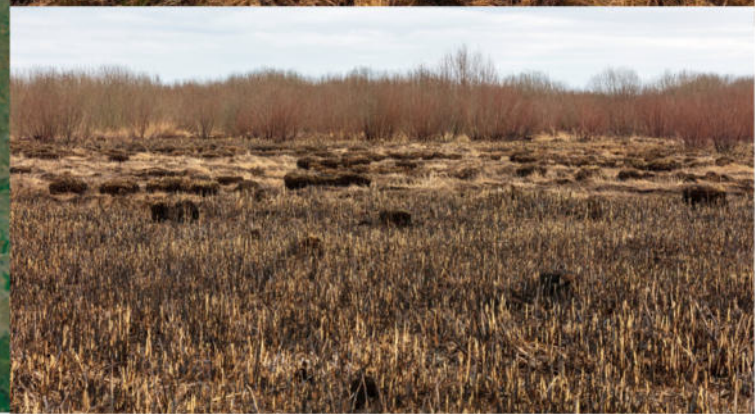
Aquatic Warbler conservation



Aquatic Warbler conservation







LIFE Project MagniDucatusAcrola 2016-2026

LIFE Project LIFE4AquaticWarbler 2024-2033

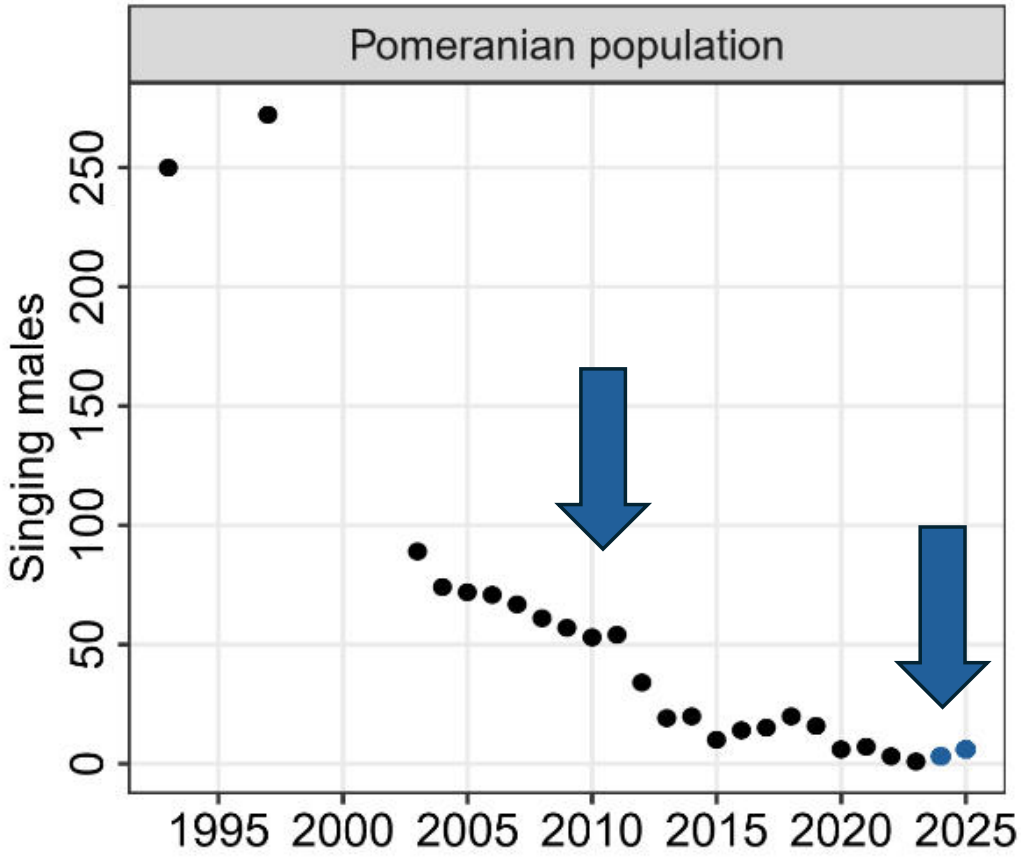
- Translocations to Pomerania 2023 and 2024

	Observations in subsequent year	return rate
2023 – 2024	**5** (3 ♂ 2 ♀)	**10 %**
2024 – 2025	**7** (5 ♂ 2 ♀) + 1 ♀ from 2023, 1 ♀ unringed, 3 ♂ unringed	**21 %**

- Translocations to Poland (3 years)
- Translocations to Germany (5 years)

Integrated Population Model

- What happened demographically during the past decline?
- How many translocation years are needed to establish a viable population?

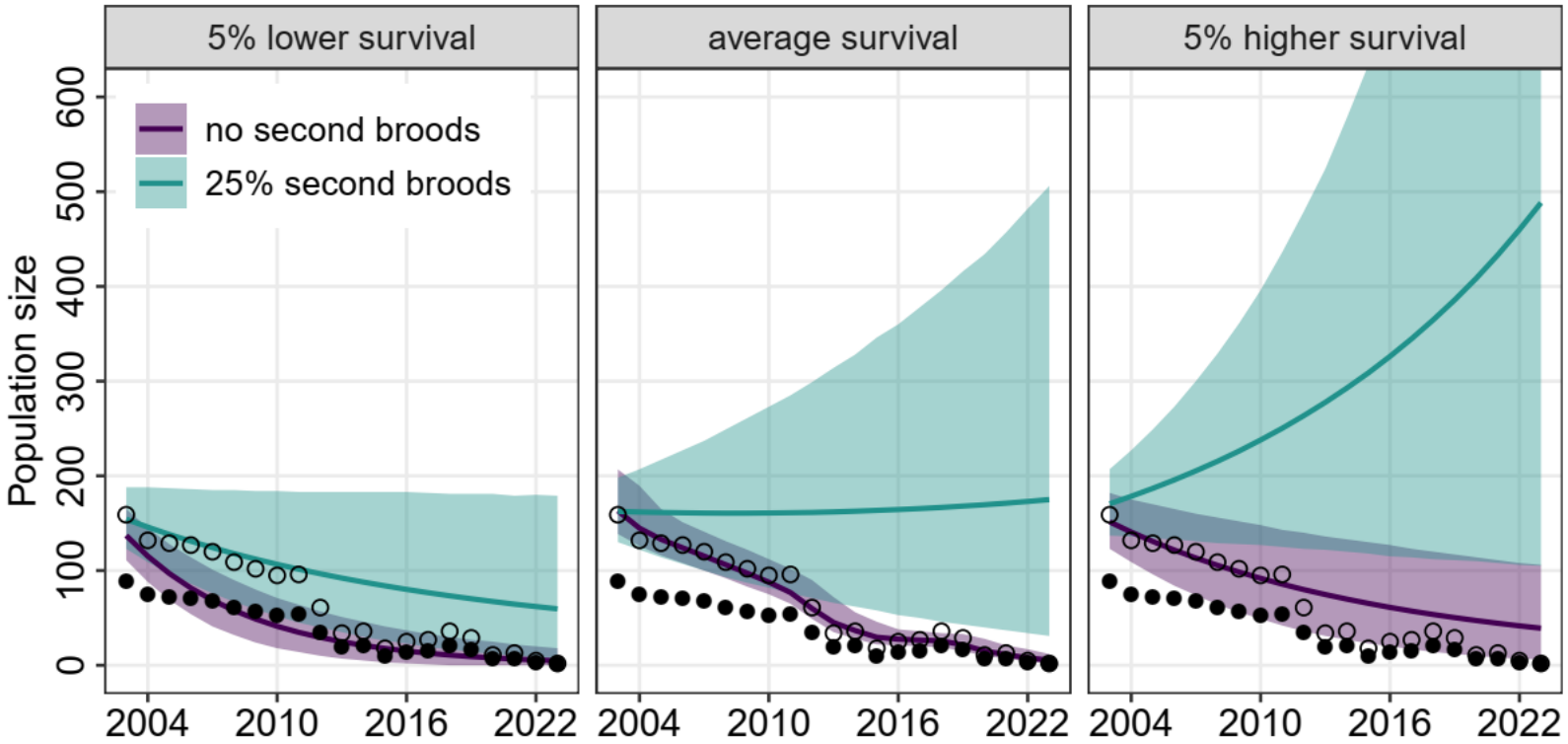


Integrated Population Model

Parameter	Value	Source
Reproductive system	polygynandrous	Schulze-Hagen et al. 1999
Max. no broods per year	2	Dyrcz & Zdunek 1993b, Schulze-Hagen et al. 1999
Proportion of second broods (%)	25 (0-50)	Dyrcz & Zdunek 1993b, Schulze-Hagen et al. 1999
Sex ratio at birth (% males)	49	Dyrcz et al. 2004
Number fledglings per brood	1st brood 3.2 (2.3-4.0) 2nd brood 2.8 (1.8-3.7)	Kubacka et al. 2014
First year survival (%)	translocation data	Morkvėnas et al. 2025
Annual survival adults (%)	females 42 (29-56) males 67 (54-78)	Dyrcz & Chylarecki 2018
Adult sex ratio (% males)	56	Dyrcz & Zdunek 1993a
Carrying capacity	1.5 males / 10 ha 1.2 nests / 10 ha	Tanneberger et al. 2018

Integrated Population Model

What happened in the past?



→ Mowing during breeding season → prevention of second broods !

Integrated Population Model

Future predictions

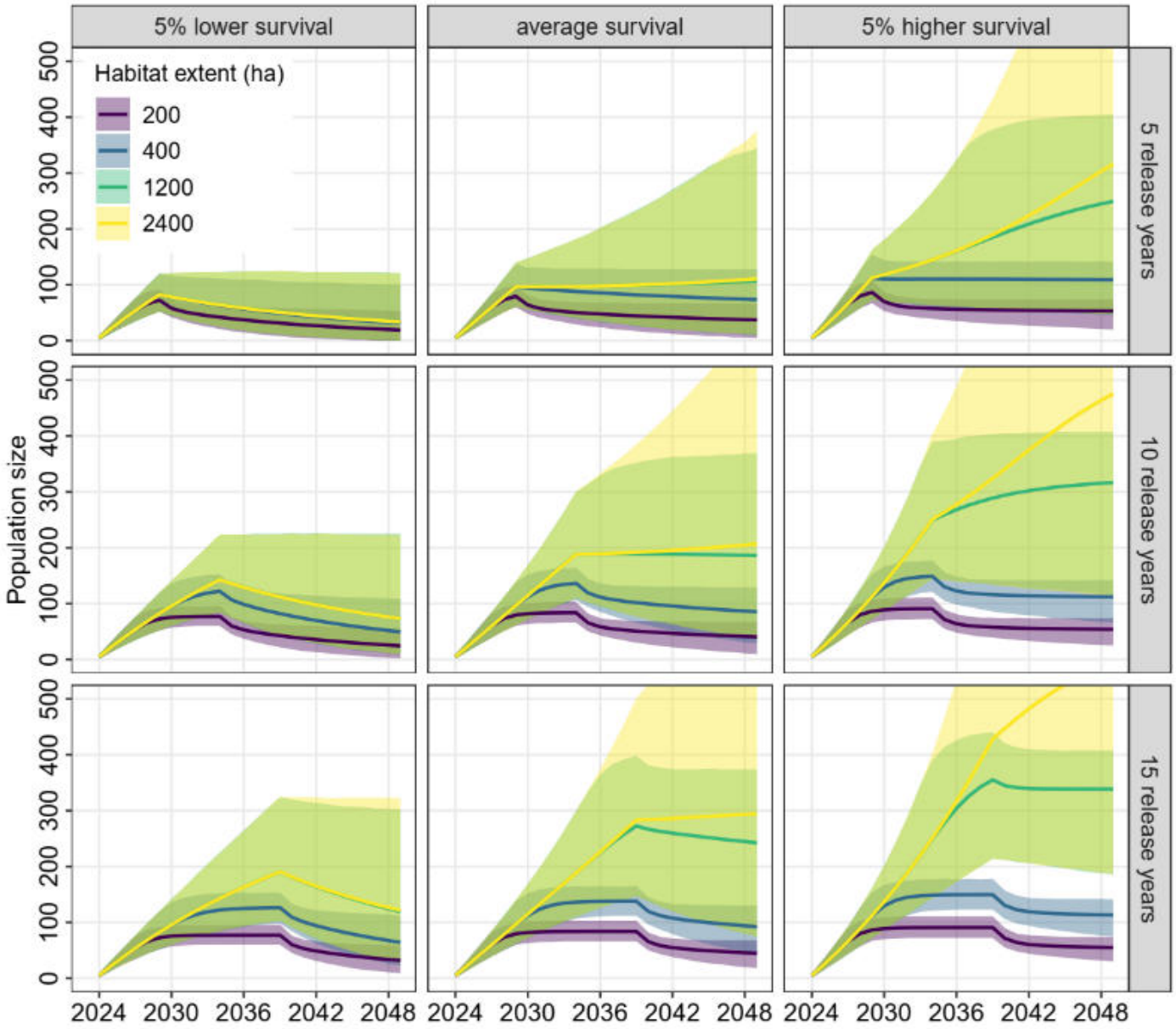
Scenarios:

- Reproduction: 25% second broods
- Variation in survival: average estimates ± 5%
- 5, 10 or 15 years of translocation (50 chicks per year)
- Habitat extent: 200 ha, 400 ha, 1200 ha, 2400 ha
- Carrying capacity: 1.2 females / 10 ha

Integrated Population Model

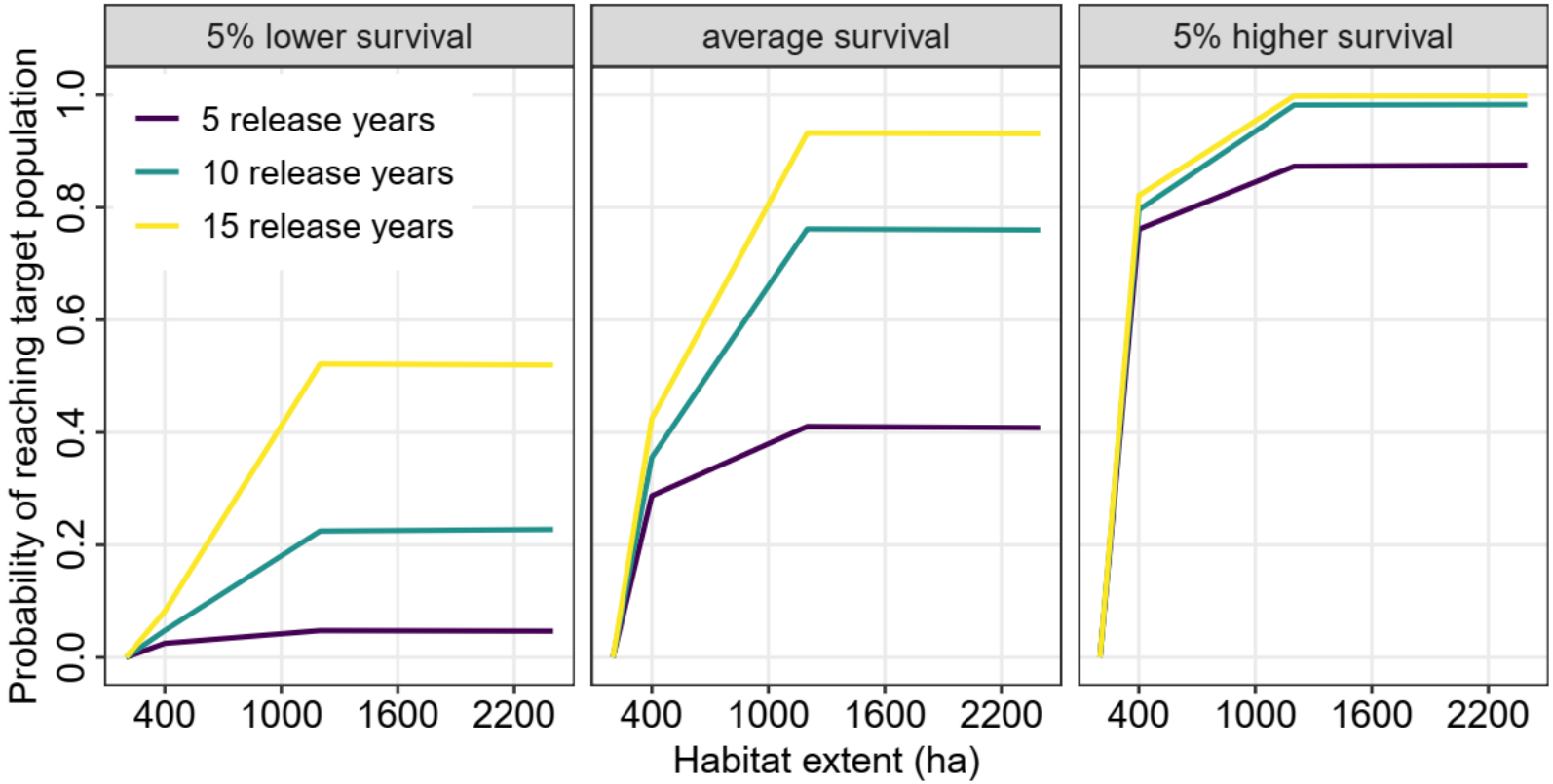
Future predictions

- Large uncertainty
- Survival most important
- Effect of habitat extent



Integrated Population Model

Target population size: 100 individuals (56 singing males)



→ Survival increase, at least 10 years releases, > 1000 ha habitat

Aquatic Warbler conservation

Most important conservation actions for Pomeranian population:

- Management to allow second broods

→ postponed mowing until 31th of August

→ vegetation structure and water level

- Habitat restoration (> 1000 ha)

→ 800 ha available + 600 ha restoration planned

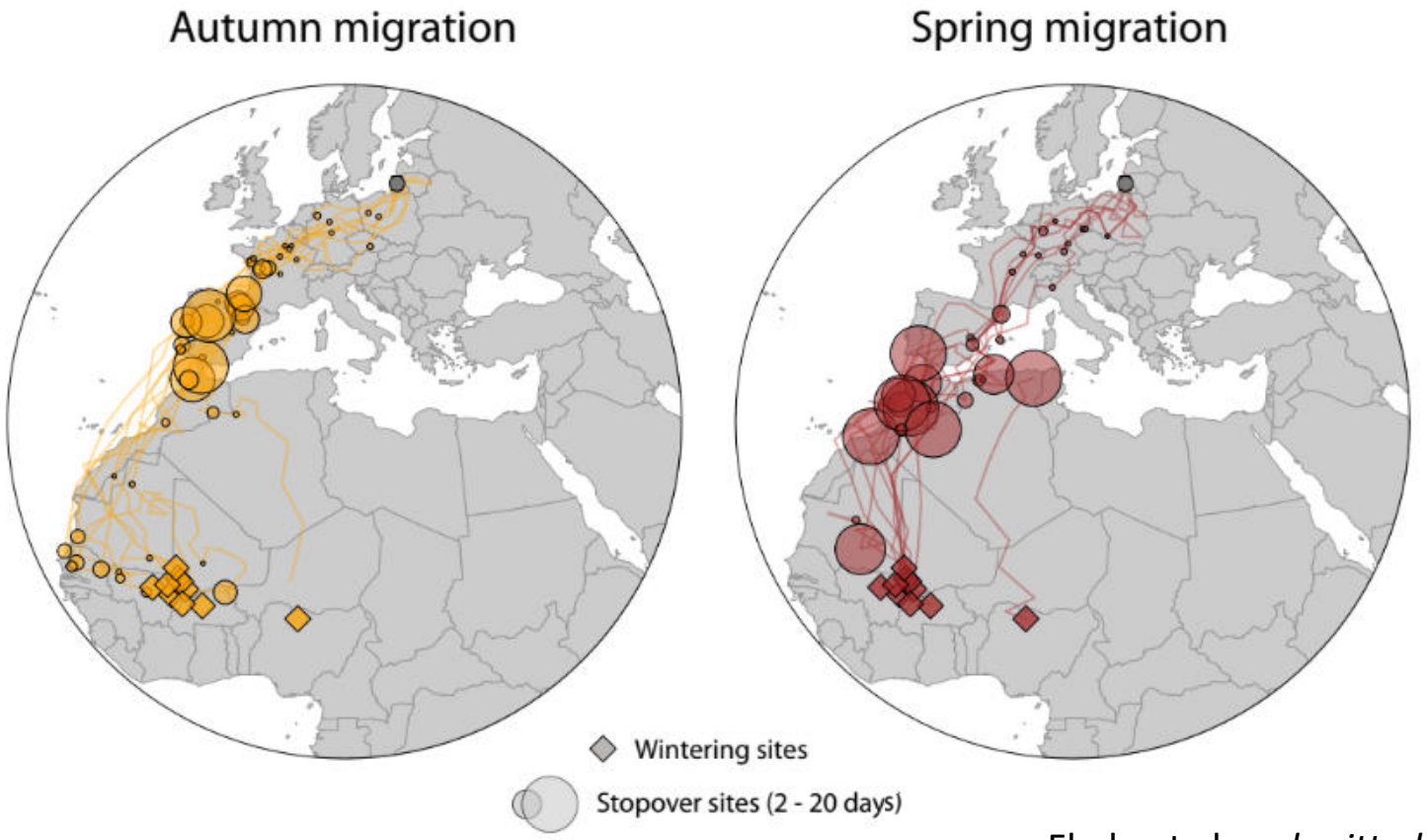
- Increase in annual survival

→ conservation actions along the whole flyway

Aquatic Warbler conservation

Increase in annual survival

LIFE Aquatic Warbler on the Move



Flade et al., *submitted*

Aquatic Warbler conservation

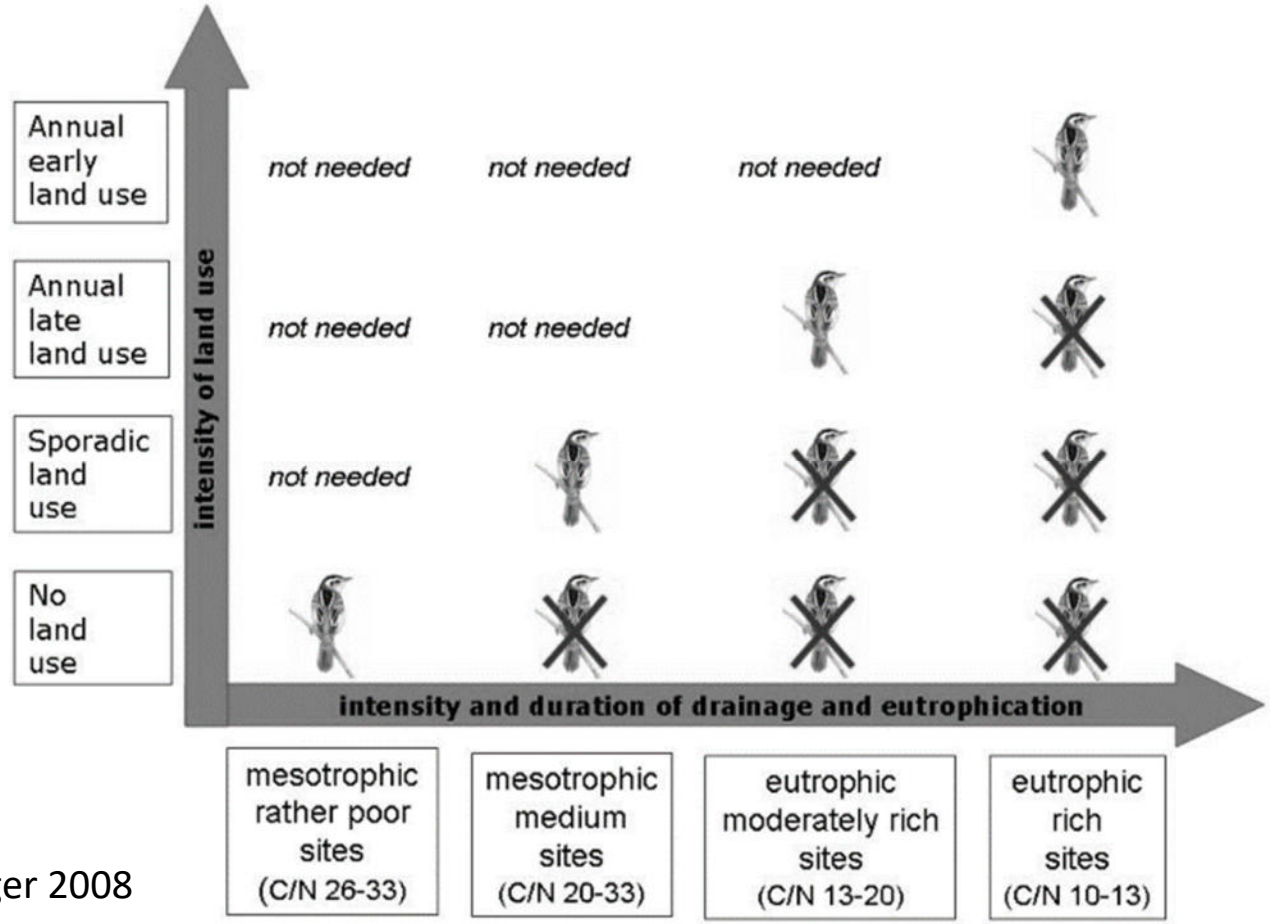
More international effort needed to protect stopover sites !

in winter !

AWCT, *2024*

Habitat management

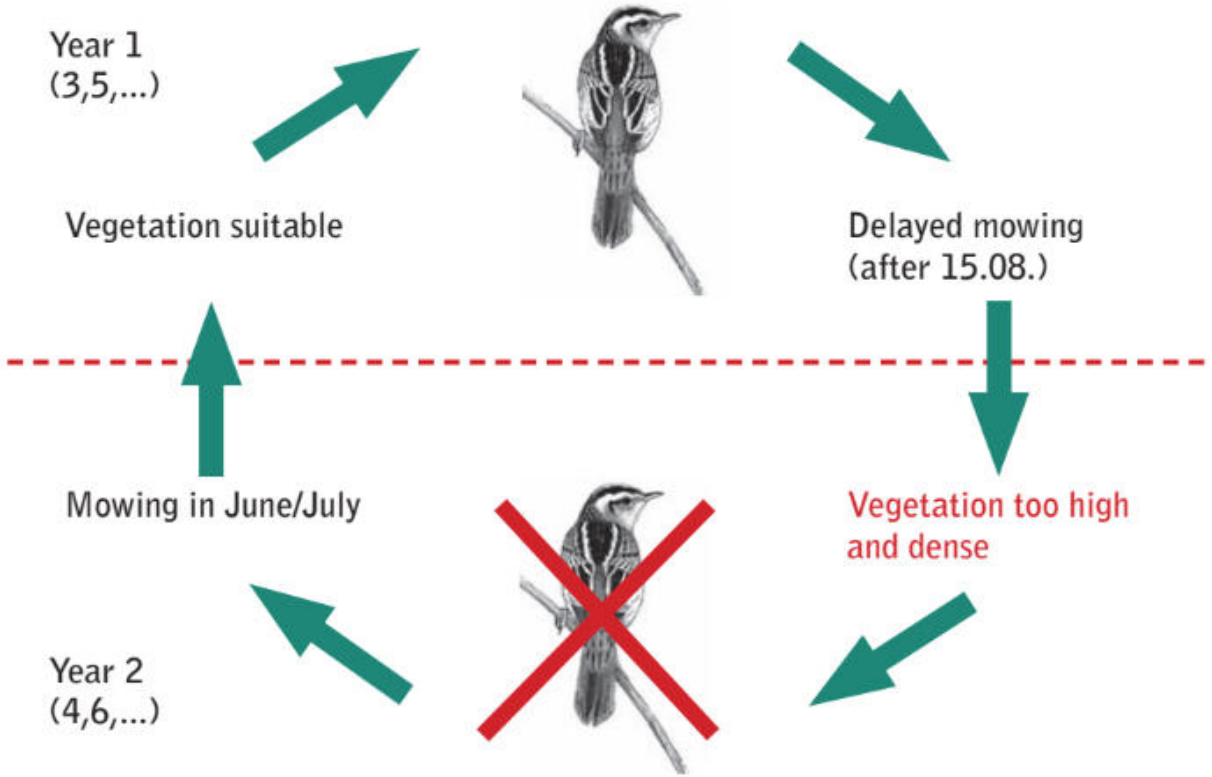
Challenges for the habitat management in Pomerania



Tanneberger 2008

Habitat management

Challenges for the habitat management in Pomerania



Tanneberger et al. 2018

Habitat management

Challenges for the habitat management in Pomerania

- postpone mowing on occupied sites
- annual mowing is needed to maintain habitat
- late mowing is unattractive to cattle farmers

→ cessation of land use

- provide added value from late-cut biomass

→ Paludiculture

Take home message

Successful restoration of the Pomeranian population:

- Conservation actions along the whole flyway to increase survival
- Secure long-term management to provide high quality breeding habitat

Co-funded by the European Union