Capercaillie in managed forests
Black Forest - Germany

Dr. Joy Coppes

joy.coppes@forst.bwl.de

FVA-Wildtierinstitut

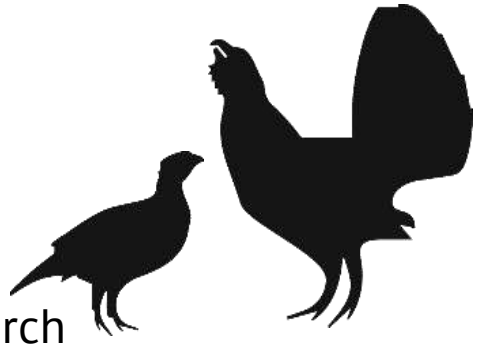
Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg

Overview

- Introduction
- Capercaillie
- Black Forest
- Capercaillie in the Black Forest
- Capercaillie monitoring
- Capercaillie Actionplan
- Capercaillie friendly forest management

Who is Dr. Joy Coppes?

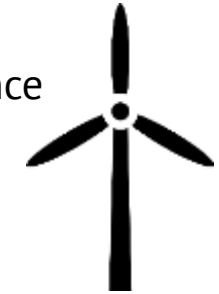
- Wildlife ecologist from the Netherlands
- Since 2009 in Freiburg, Germany
- Different research positions
- Focus on capercaillie monitoring & research
- Visited capercaillie habitats around Europe



© Coppes

Habitat - Silviculture

Recreation disturbance



Wind power

Climate change

Reproduction succes

Forest Research Institute of Baden-Württemberg

- State research institution for forests and forestry in Baden-Württemberg
- focus on applied science: transferring scientific knowledge into practical forestry work
- Main tasks:
  - research
  - monitoring
  - advising: politics, administrations, and forestry

Capercaillie


© Coppes

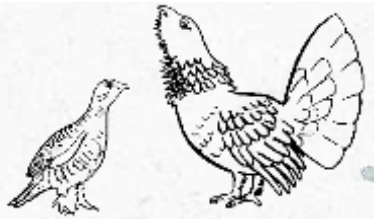

© Coppes

- Ground breeder & spends a lot of time on the ground
- Habitat
  - Heterogenous, structurally rich forests
  - Light & darkness: open & closed canopy
    - Stand
    - Landscape
  - Ground vegetation: diverse (species & height)
- Large home range → needs suitable **landscape**
- Umbrella species – high biodiversity

Suter et al. 2002

(c) Laura Huber-Eustachi (Feuerfliege Illustration)

Large distribution range



- **Diverse** habitat structures on a **landscape** scale
- **Managed** & **Unmanaged** forests

Coppes et al. 2015


Black Forest
Karlsruhe
Pforzheim
Haguenau
Freiburg
im Breisgau
Basel
Frauenfeld
SE
EE
LV
LT
DK
BY
PL
DE
CZ
SK
UA
AT
HU
MD
CH
SI
HR
RO
IT
CS
BG
MK
AL
GR
TR

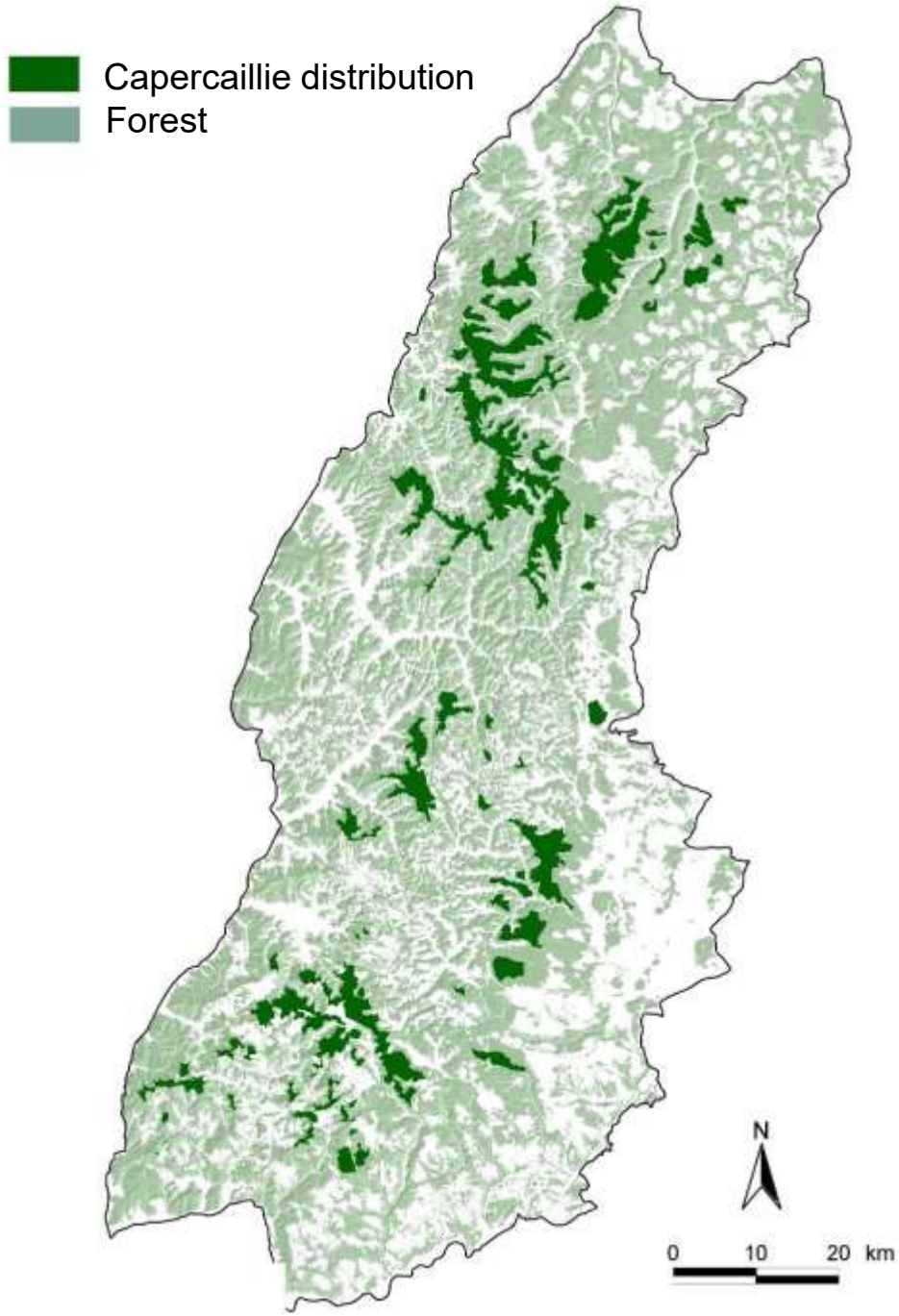
Black Forest

- Elevation: max 1500 m
- Main tree species:
    - Spruce (*Picea*)
    - Beech (*Fagus*)
    - Fir (*Abies*)
    - Pine (*Pinus*)
- Intensively managed forests
- Sylviculture: mainly continuous cover forestry
- Capercaillie mainly in state owned forests

- Large parts: N2000 SPA areas
- National Park, Biosphere reserve

Capercaillie in the Black Forest

- Capercaillie:
  - Hunting legislation (not hunted since 1971)
  - Nature protection legislation (EU Legislation)
- Management scheme:
  - Capercaillie friendly forest management to abide EU Legislation
- Capercaillie scattered, mainly on peaks (>1000 m.a.s.l.)
- Genetic exchange still possible: Metapopulation



Capercaillie managementplan

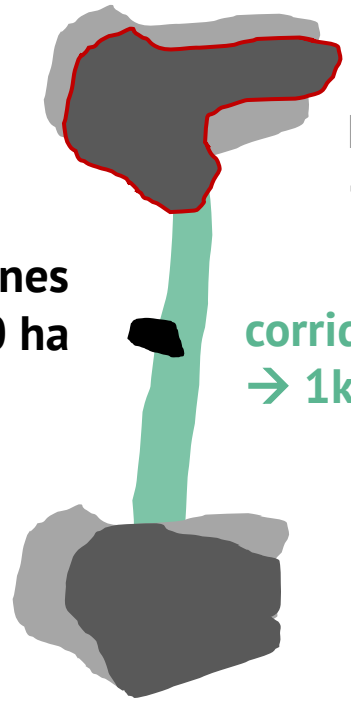
- Long history of monitoring and management of capercaillie in the Black Forest

- 2008: First landscape scale management scheme
  - Based on monitoring data and scientific research
  - Spatially explicit area concept

- 2023-2028:
  - Updated spatially scheme: new explicit area concept
  - Management focus on:
    - Habitat management
    - Reducing disturbance (recreation, hunting, infrastructure, forestry)
    - Reducing predation pressure

Spatially explicit area concept

Priority area: Core
→ approx. 34 000 hectares

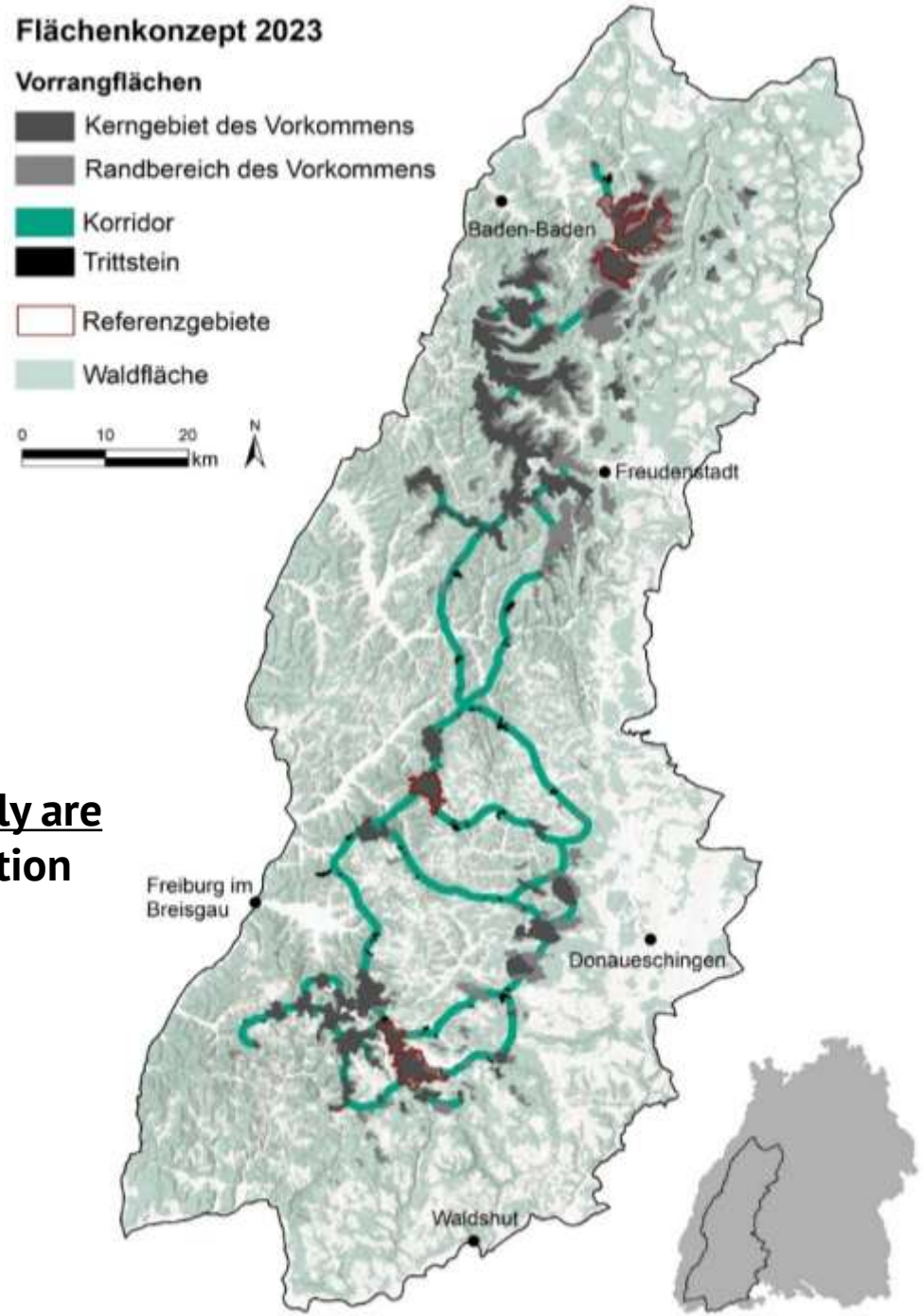


Priority area: Edge
→ approx. 25 000 hectares

Steppingstones
→ 5 ha - 100 ha

corridors
→ 1km wide

<u>Not just management where they currently are</u>
→ goal to increase the habitat & population (EU Legislation)



Capercaillie Monitoring

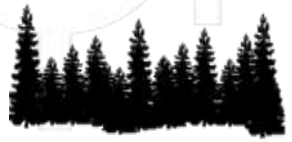
Monitoring of the long term condition and development of a species or a population using standardized, reliable, quantitative methods

Capercaillie population

- Population trend: lekking counts
- Distribution area: opportunistic monitoring
- Local occurrence monitoring: systematic mapping of signs (feathers, droppings etc.)
- (Reproduction success - transects)
- (Population size – genetic analysis droppings / feathers)
- (Tests: camera traps, bioacoustics/ automatic recording units)

Habitat monitoring

- Aerial photographs: landscape scale changes in habitat suitability (forest structures)
- Local terrestrial mapping: ground vegetation and shrubs (before & after **management**)

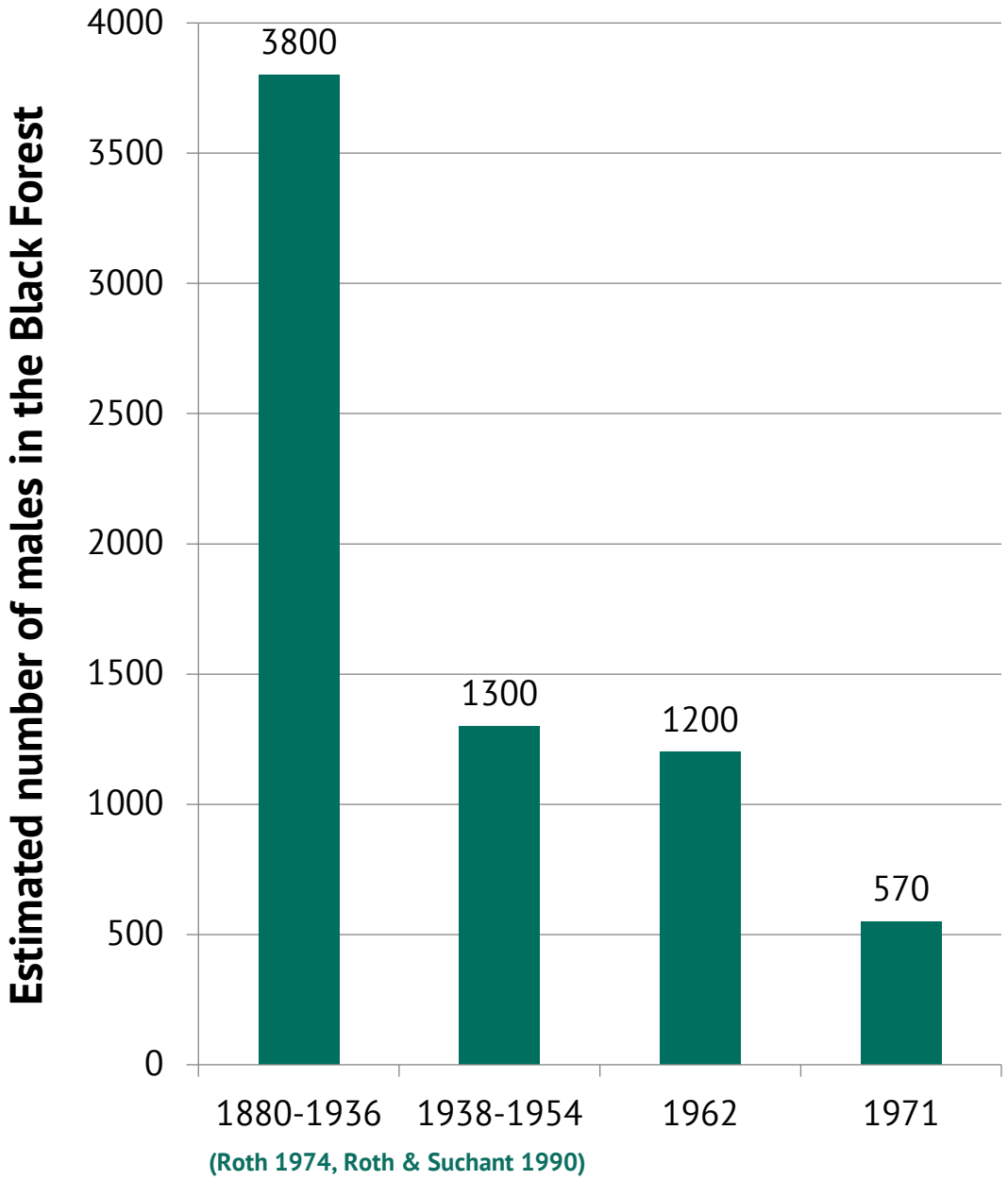


Population trend: lekking counts

- Hunters' associations, hunting districts, interest groups
- Foresters (ForstBW)
- Black Forest National Park
- Capercaillie Association in the Black Forest e.V.
- FVA staff
- Ornithologists
- Other volunteers

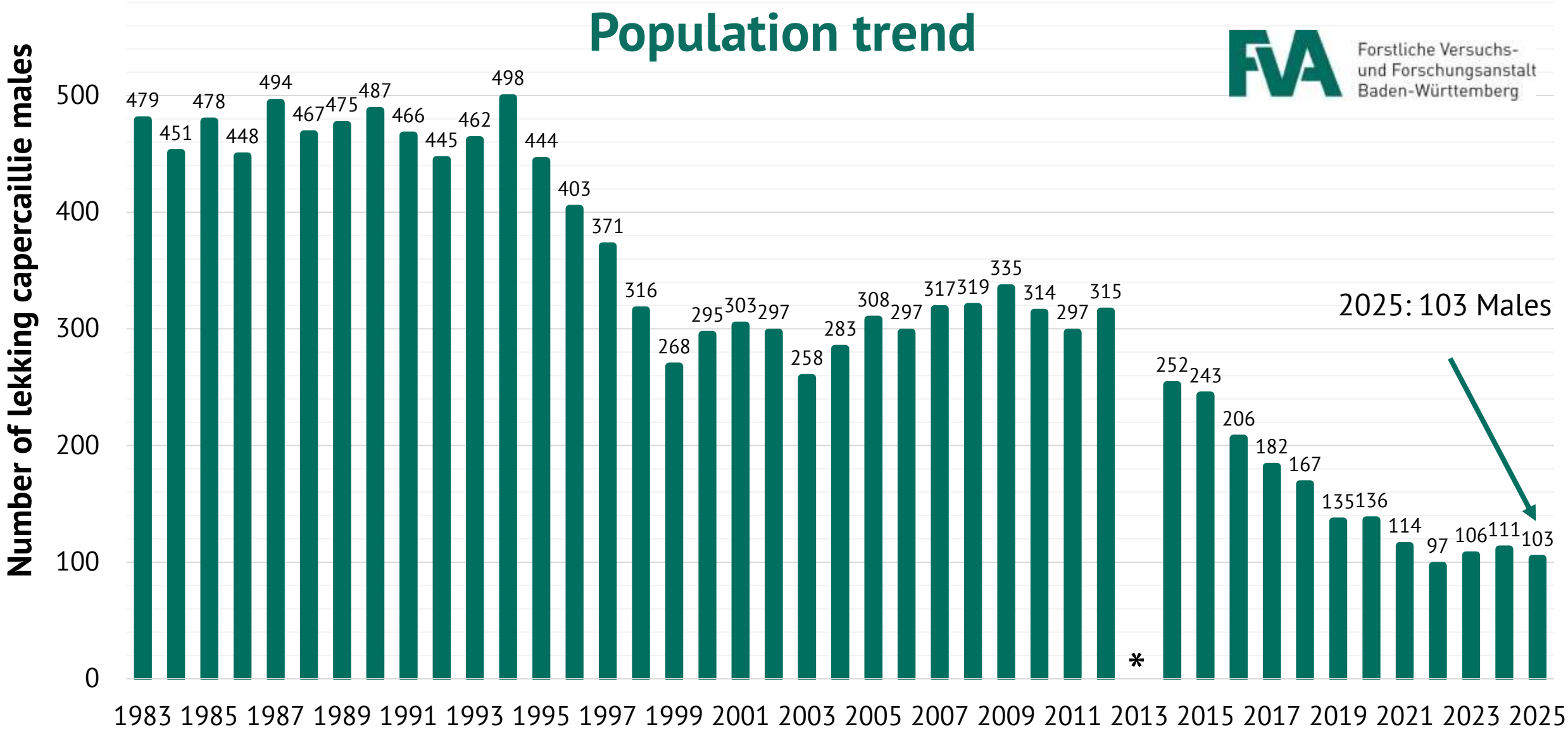
Coordination across the Black Forest and compilation of the data: FVA

Population trend



(Roth 1974, Roth & Suchant 1990)

Population trend



Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg

Coppes et al. 2026

Distribution area: opportunistic monitoring

- All observations documented (new online tool: WNS info)
- Main people opportunistically observing capercaillie and their signs (droppings / feathers):
  - Forestry personnel
  - Hunters

- Every 5 year all data is collated: opportunistic + systematic
- Delineate distribution area:

1989-1993	2009-2013
1994-1998	2014-2018
1999-2003	2019-2023
2004-2008	

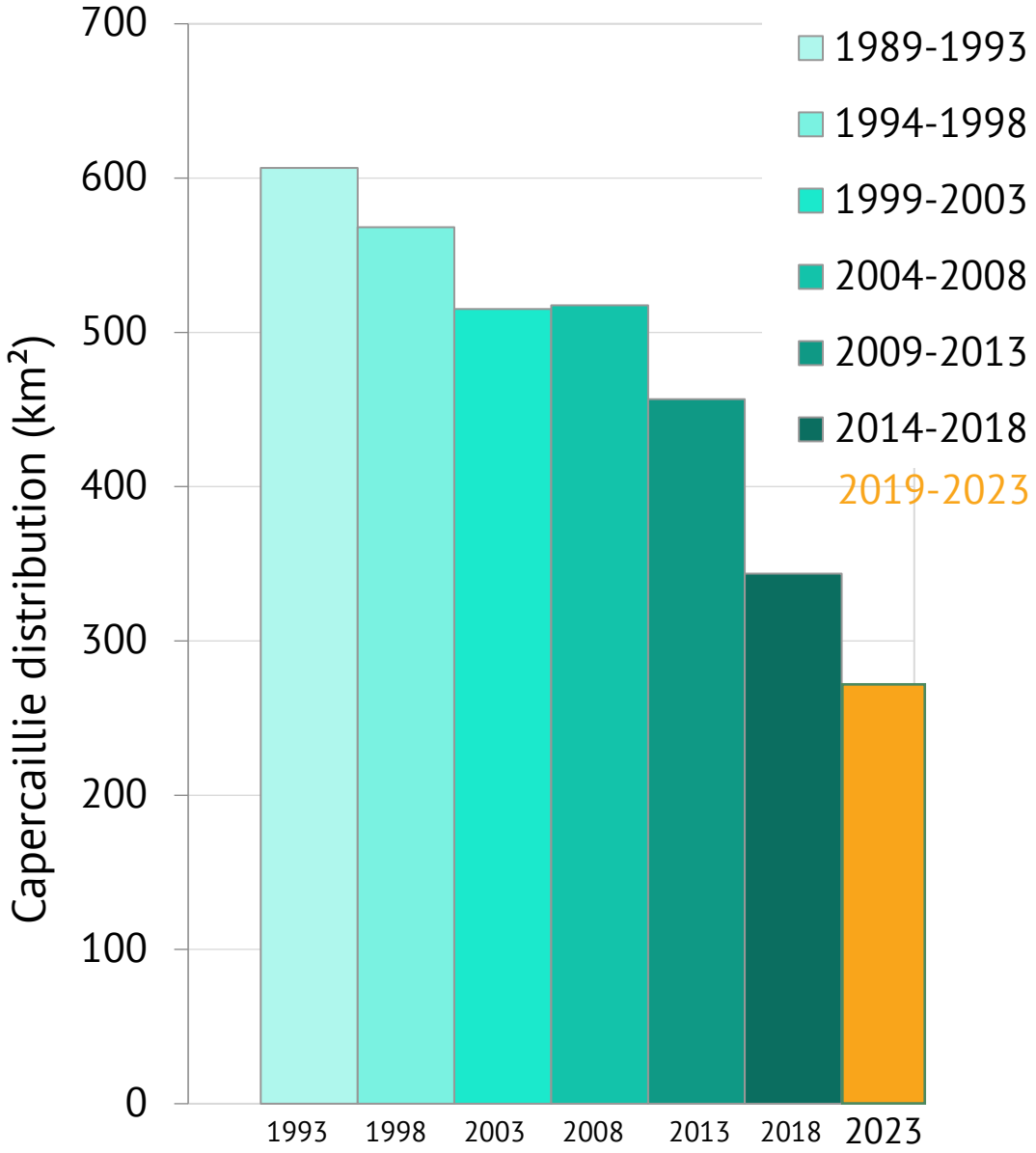
Distribution area

1989-1993: approx. 60.000 ha

2014-2018: approx. 34.000 ha

2019-2023: approx. 27.000 ha

>50% decline in distribution area



Monitoring data are important foundation for the management and protection of the species

- Statutory mandate under the Nature protection and hunting legislation
- EU Legislation: reporting!

- Historical support from the hunting community → a key argument for keeping the capercaillie in hunting legislation
- A central component of the area concept in the management plan
- Monitoring is essential foundation for:
  - Funding of forestry measures in private and municipal forests
  - Trap subsidies for predator management (LJV): 80% in core areas, 60% in peripheral areas, 50% of investment costs in other areas
  - Assessment of: recreation events, wind turbines, other projects

- **Forestry personnel and hunters area essential for monitoring!**

Main cause of decline: Habitat deterioration

Changes in forest management: Continuous cover forestry (close to nature forestry)

- Keeps the forest canopy permanently in place
- Selective harvesting (no clear-cutting)
- Natural regeneration, small scale: many trees of different ages and sizes
- Result: Homogeneous stands, little ground vegetation

→ Forests have become to **dense**, little light reaches the forest floor = Unsuitable

Other factors influencing capercaillie

- Increased predators
- Increased recreational use
- Climate change

Forestry & Capercaillie!?

Capercaillie friendly forestry

Challenge: Balancing different demands of the forest (silviculture, recreation, wind power, & capercaillie!?)

→ “Optimal” capercaillie habitat not realistic on a landscape scale

With the right silvicultural methods: capercaillie & timber production can be combined

Based on scientific research and monitoring data:

identified minimum structural and area requirements for capercaillie minimal viable population

- Quantitative targets: 500 Birds (MVP)/ 50 000 ha Grim & Storch 2002, Suchant et al. 2002

- Qualitative targets: 30 % „Suitable habitat“ on minimum **50 000 ha** (= Priority areas of management scheme)

Suchant et al. 2002

Minimum proportion of suitable habitat → 30 %

This not a capercaillie paradise!
→ Balancing different demands while keeping a minimum habitat suitability

„Minimumvalues“

Gaps / small clear cuts

10 %

Open stands Canopy cover 50–70%

20 %

Spruce- or Pine-dominated

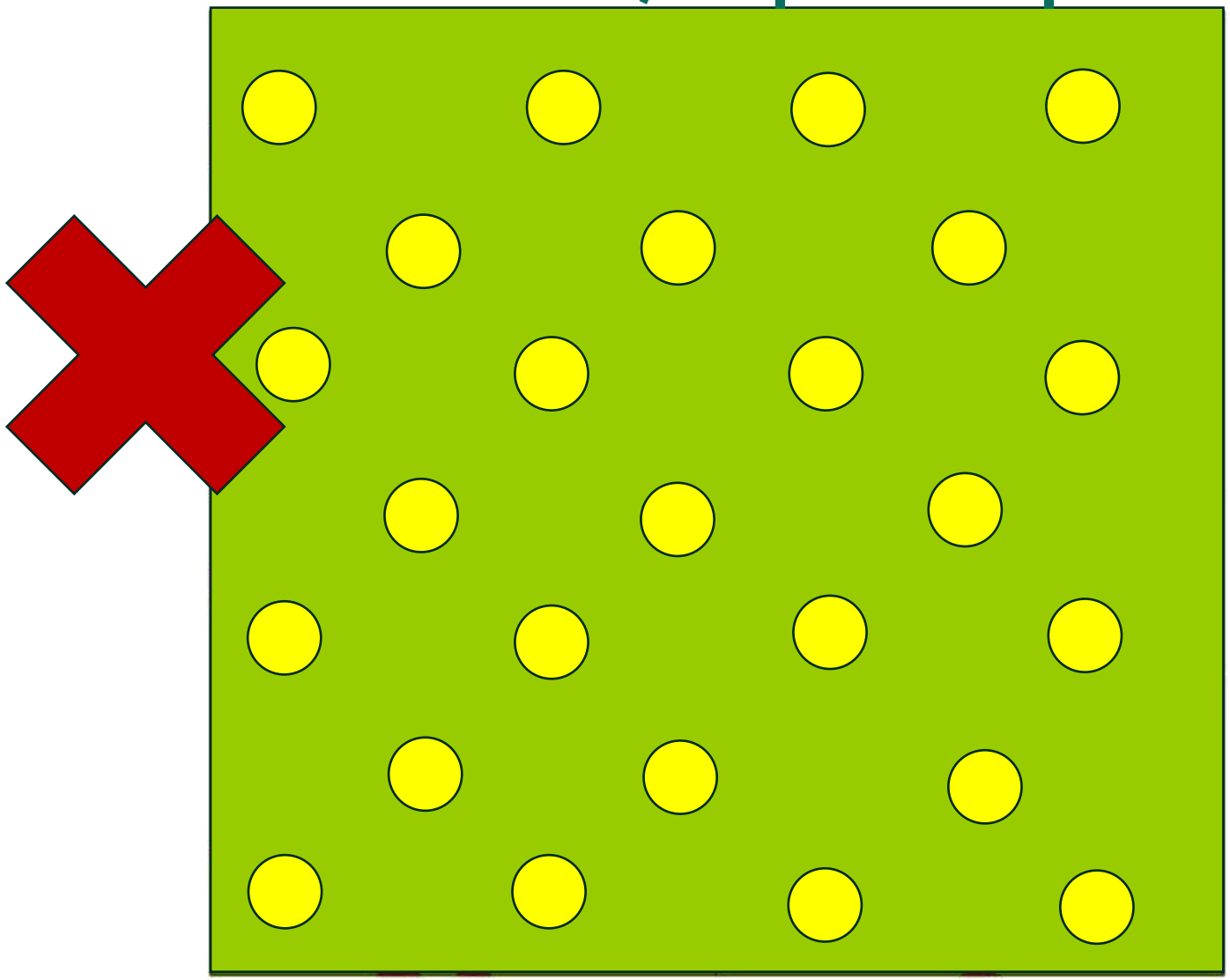
10 %

„Maximumvalue“

„Dense“ patches (Thickets, Dense pole stands)

30 %

How to create/ improve capercaillie habitat?



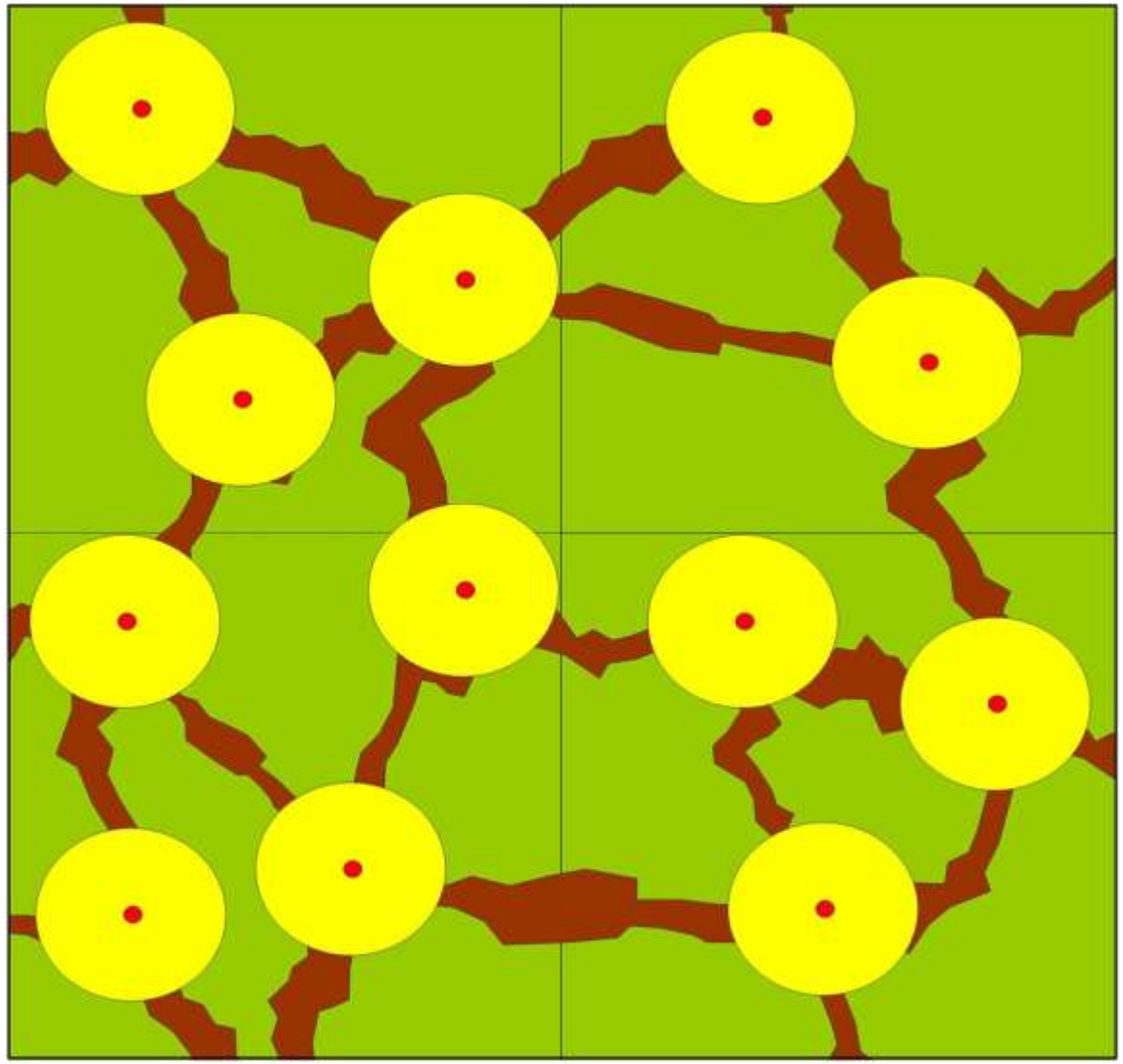
Young stand

Open areas

0 10 20 30 40 50 60 m

Too homogeneous
Long term → unsuitable habitat

Young stand



Open areas (20-30m, removing spruce, fir and beech)

Lighter corridors(3-8m wide, wide forestry trails, aisles

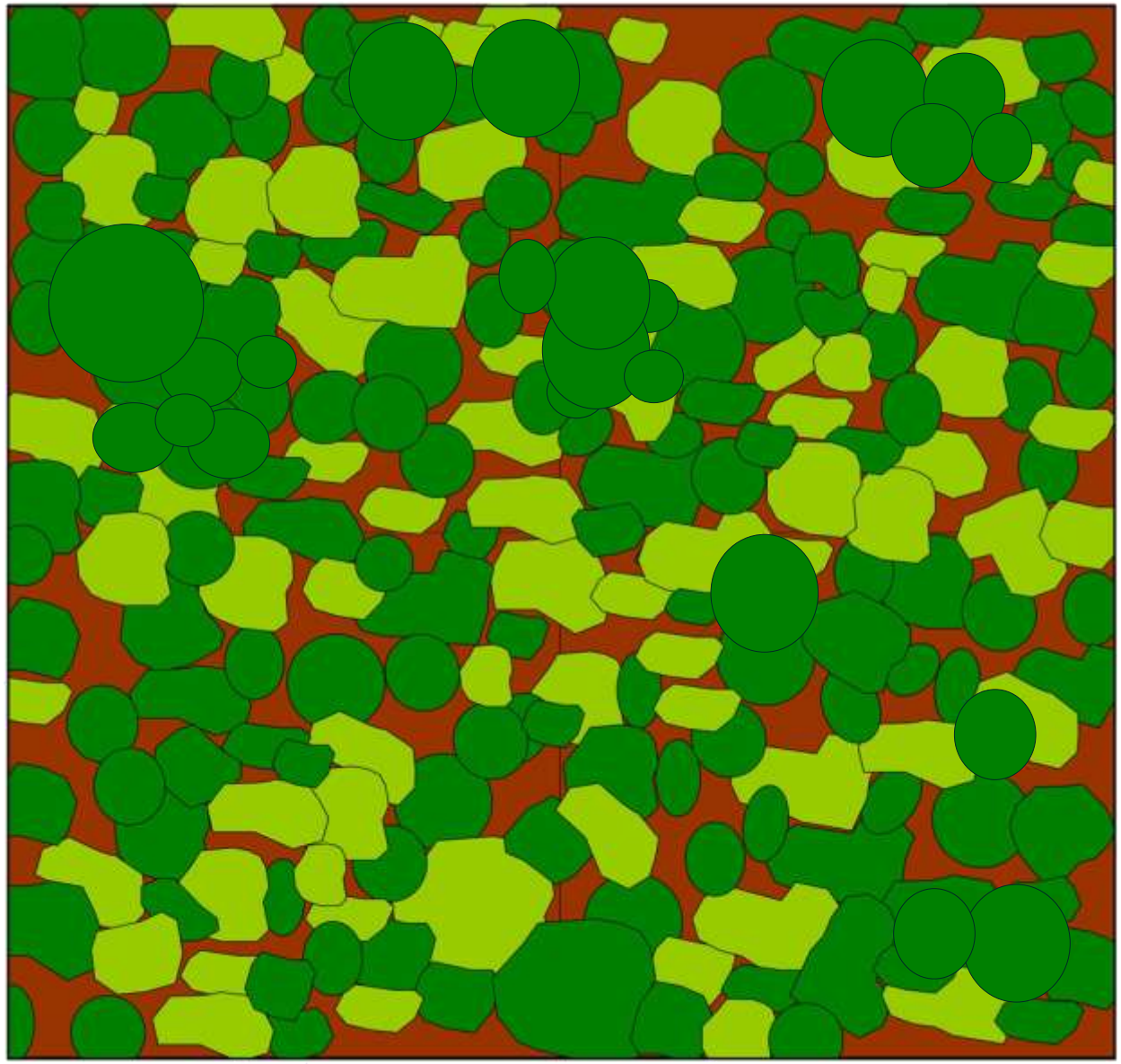
Young stands are future capercaillie habitats!
Heterogeneous management - unevenly distributed

How to create/ improve capercaillie habitat?

Stand undergoing thinning

- Reduce canopy cover to 50 – 70%
  - **Unevenly** distributed (canopy gaps & dense canopy)
  - More thinning in areas of weaker growth

- Remove undergrowth regeneration (Beech (*Fagus sylvatica*))
- Machine trails & aisles → Wide

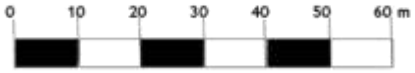


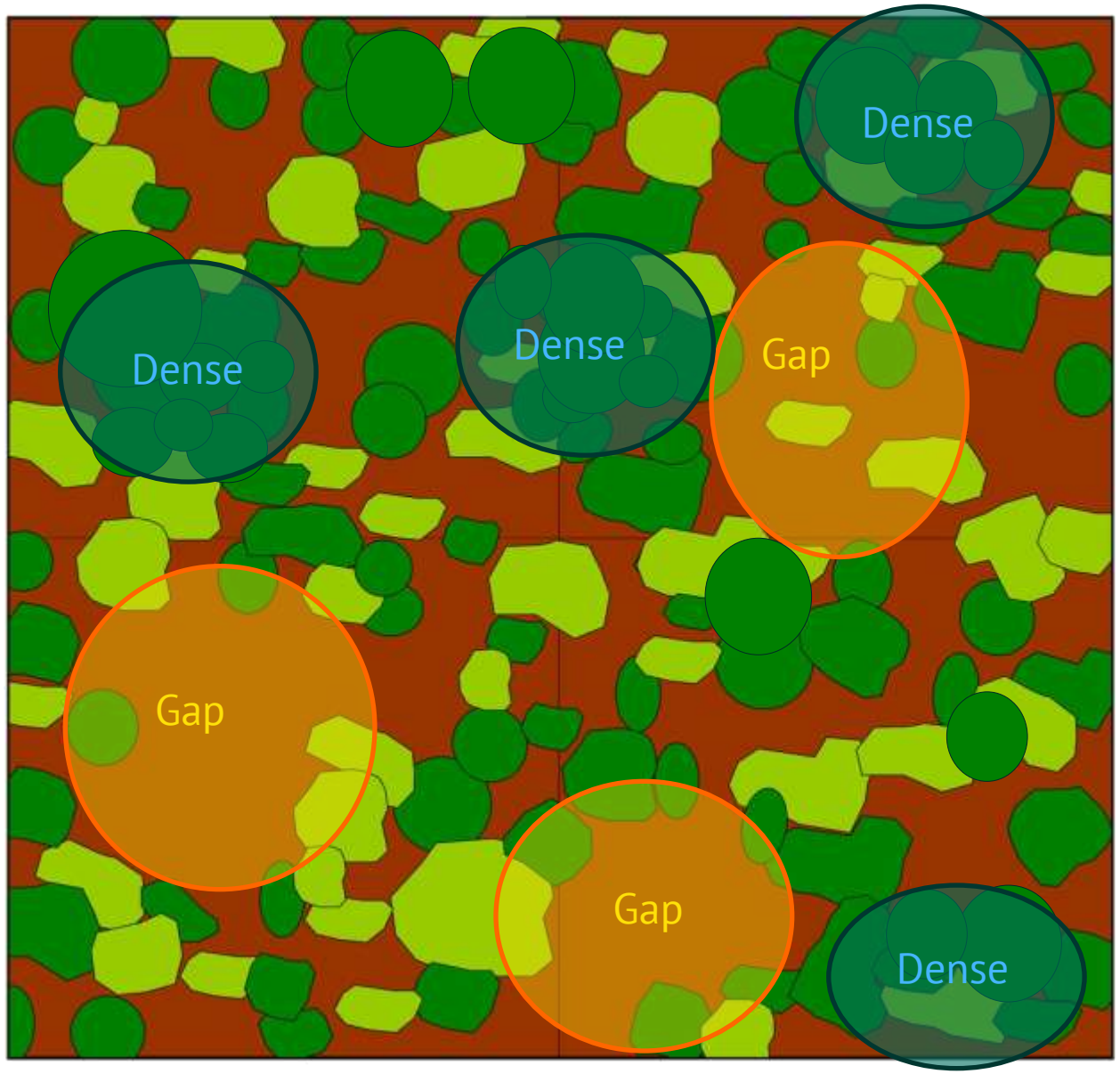
Thinning stand

Before

Deciduous trees

Coniferous trees





Thinning stand

After

Deciduous trees

Coniferous trees

Heterogenous: „**<u>light gaps</u>**“ but also keeping „**<u>dark spots</u>**“! --> creates heterogeneous ground vegetation

Capercaillie friendly forest management is effective

- Capercaillie management increases structural diversity in forests

- Landscape scale: forest structures determines capercaillie distribution area Kämmerle et al. 2002
- Stand scale: probability of use by capercaillie significantly increases Kochs et al. 2025

- Increasing structural diversity = increasing biodiversity

- After management:
  - increased flying insect biomass 2x Braunisch et al. Unpublished
  - increased number of bee species 2x Eckerter et al. 2022
  - increased number of butterfly species 3x George et al. Unpublished

(c) Laura Huber-Eustachi (Feuerfliege Illustration)

Despite the long-standing management plan, the capercaillie population is declining

- Not **enough**, **large** scale implementation of capercaillie friendly forestry

Challenges:

some land owners and foresters:

- Different from traditional continuous cover forestry (adaptation..)
- Negative attitude towards capercaillie (annoying to take into account, prevents wind turbines)
- „Belief“ that capercaillie go extinct whatever is done („unnatural“, climate change..)
- Politicians: balancing capercaillie vs other demands and lobby

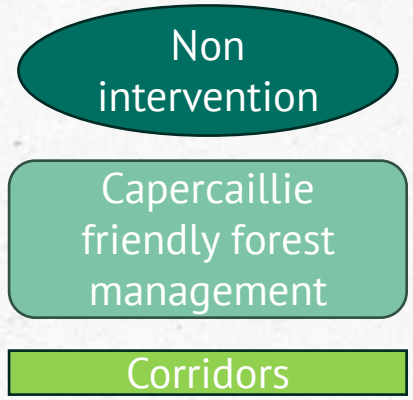
Capercaillie friendly future

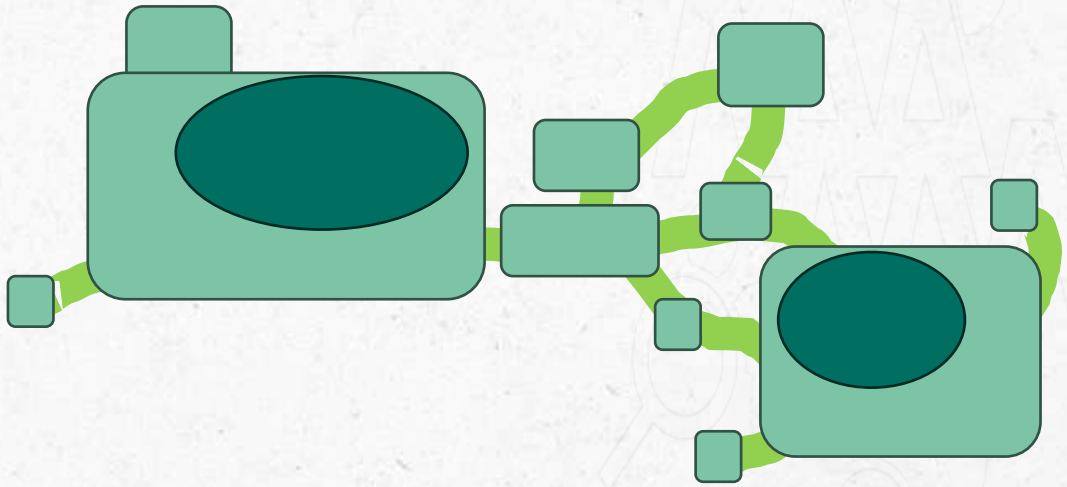
Recommendations: Save capercaillie & abide by EU Legislation

- **Preserve**: Ancient old growth forests → Capercaillie habitats that cannot be replaced

- In **young** / **disturbed** forests: Capercaillie friendly forest management
  - create structurally rich forests
- Large scale: at least **100 ha** per patches and patches must be **close to (<10km)** other capercaillie occurrences

- **Monitoring**:
  - Capercaillie population → at least: documenting sightings & findings
  - Habitat → preferably before and after management





Capercaillie friendly future

- By implementing capercaillie friendly forest management on a large scale, we can save the capercaillie
- With the adequate silvicultural methods: Capercaillie can survive in production forests

- Increasing habitat structural diversity increases biodiversity

- We hold the future of capercaillie in our hands: we determine what our forests look like

Thank you for your attention

Ďakujem za vašu pozornosť

Dr. Joy Coppes

FVA-Wildtierinstitut

joy.coppes@forst.bwl.de

FVA Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg

LFV Landes Forst Verwaltung BW