

ClimeHop

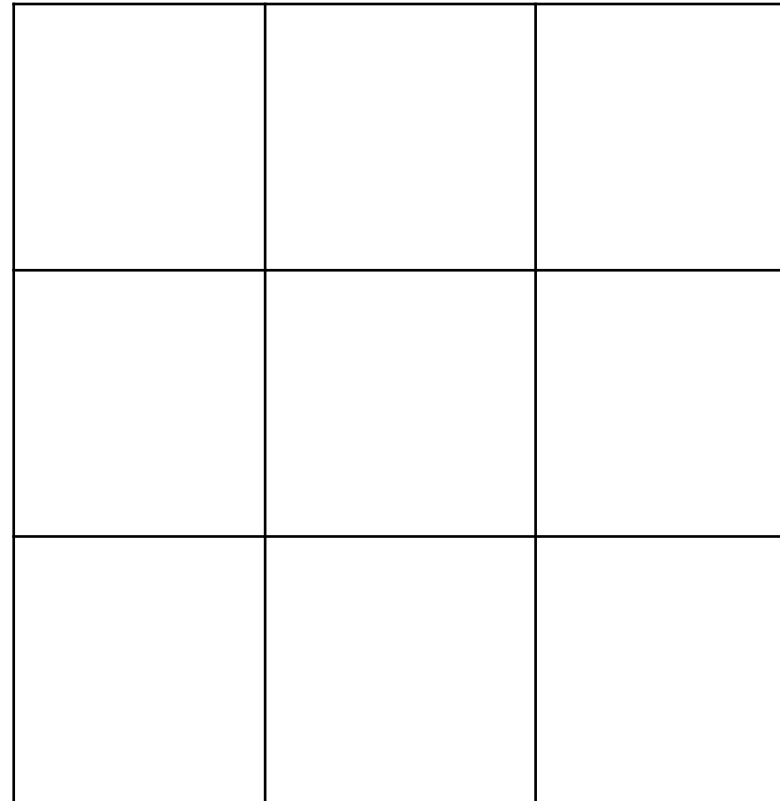
Lecture slides

Conservation measures for the large marsh grasshopper

Measure name	Measure definition	Number of mowing events	Ecological impact	Costs
Very early mowing	Mowing until 7 weeks after the beginning of the vegetation period	1	++	€€
Early mowing	Mowing until 9 weeks after the beginning of the vegetation period	1	+++	€€€
Late mowing	Mowing after 21 weeks after the beginning of the vegetation period	1	++++	€€€€
Very late mowing	Mowing after 23 weeks after the beginning of the vegetation period	1	+++++	€€€€€
Mowing twice	Mowing until 7 and after 23 weeks after the beginning of the vegetation period	2	+	€

Cost-effectiveness

- Imagine a landscape divided into 9 grid cells



Cost-effectiveness

- Imagine a landscape divided into 9 grid cells
- Each grid cell has a specific „ecological value“ (EV)

9 EV	8 EV	7 EV
6 EV	5 EV	4 EV
3 EV	2 EV	1 EV

Cost-effectiveness

- Imagine a landscape divided into 9 grid cells
- Each grid cell has a specific „ecological value“ (EV)
- Each grid cell also has specific **conservation costs**

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
3 EV 2,000€	2 EV 1,000€	1 EV 1,000€

Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- In which order would an ecologist who only considers ecol. value choose conservation sites?

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
3 EV 2,000€	2 EV 1,000€	1 EV 1,000€

Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- In which order would an ecologist who only considers ecol. value choose conservation sites?
 - Start with 9EV, then 8EV, then 7EV etc.

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
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Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- In which order would an ecologist who only considers ecol. value choose conservation sites?
 - Start with 9EV, then 8EV, then 7EV etc.
- In which order would an economist who only considers costs choose conservation sites?

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
3 EV 2,000€	2 EV 1,000€	1 EV 1,000€

Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- In which order would an ecologist who only considers ecol. value choose conservation sites?
 - Start with 9EV, then 8EV, then 7EV etc.
- In which order would an economist who only considers costs choose conservation sites?
 - Start with cheapest (1,000€), then 2,000€ etc.

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
3 EV 2,000€	2 EV 1,000€	1 EV 1,000€

Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- Budget constraint: 6,000€
- Which sites would they choose?

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
3 EV 2,000€	2 EV 1,000€	1 EV 1,000€



Ecologist

Cost-effectiveness

- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- Budget constraint: 6,000€
- Which sites would they choose?

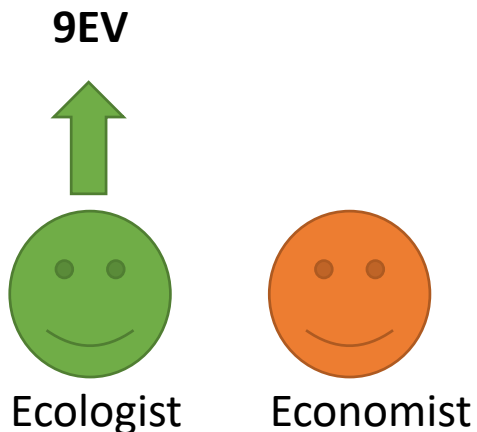
9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
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Cost-effectiveness

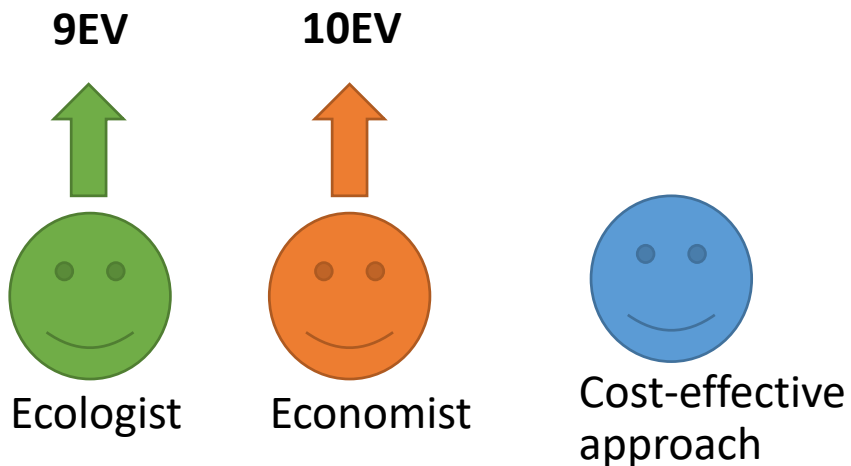
- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- Budget constraint: 6,000€
- Which sites would they choose?

9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
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Cost-effectiveness

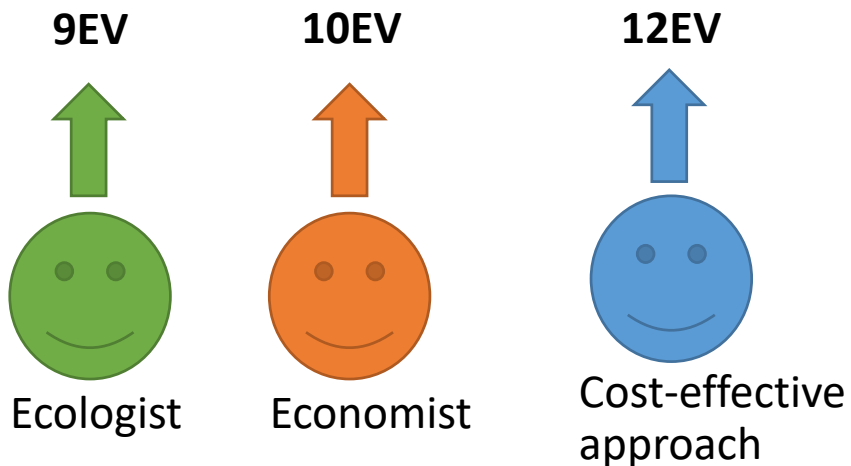
- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- Budget constraint: 6,000€
- Which sites would they choose?



9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
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Cost-effectiveness

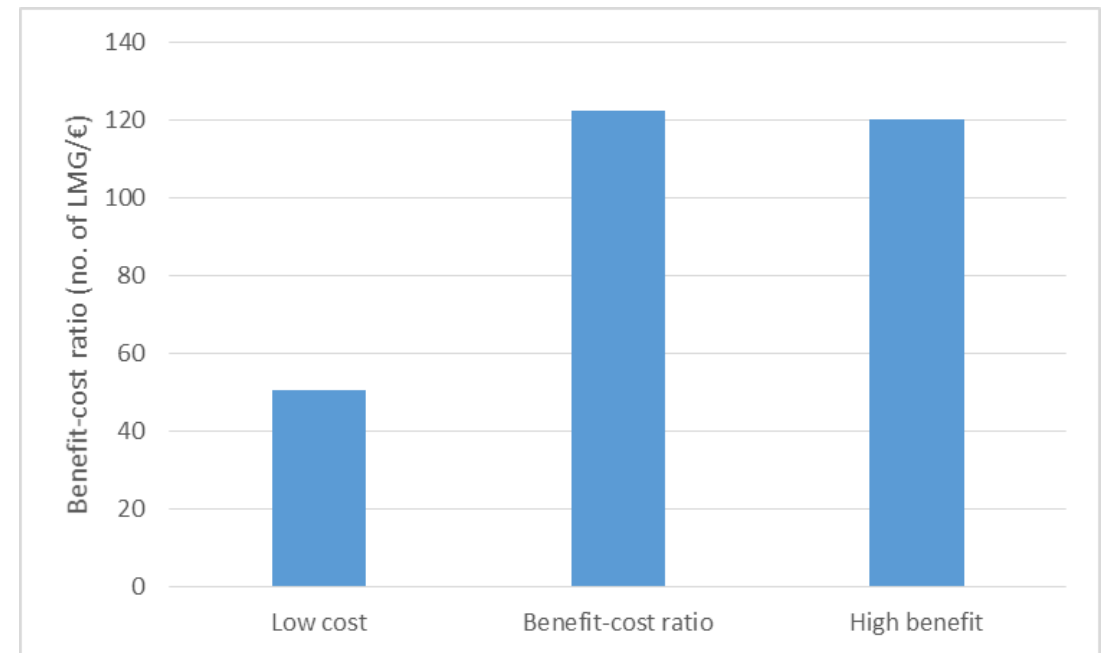
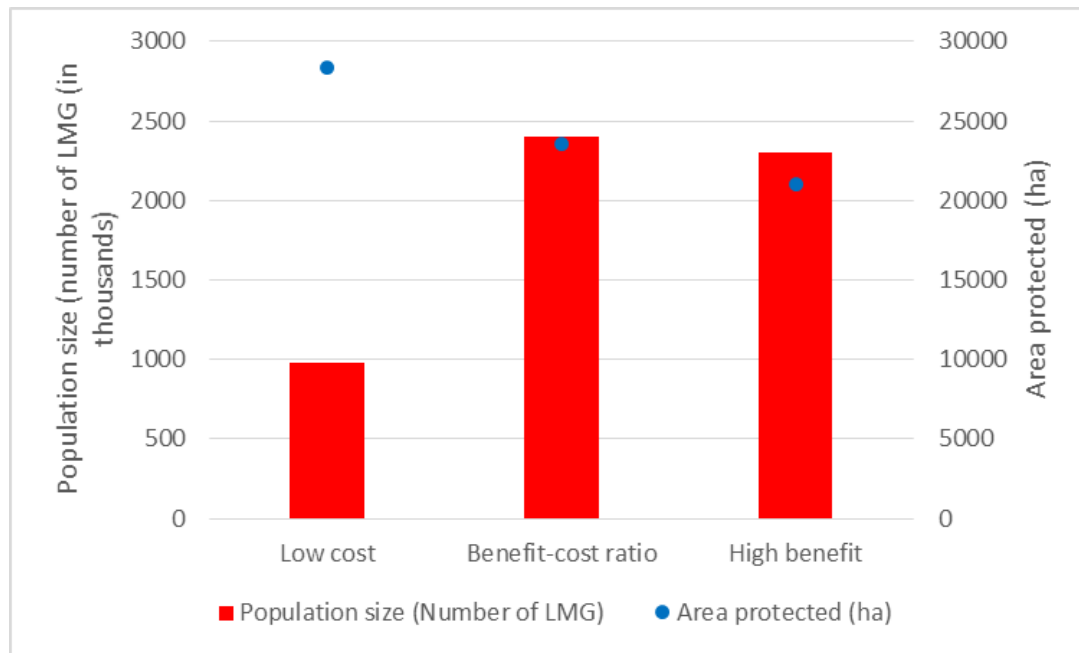
- Each grid cell has a specific „ecological value“ (EV) and **conservation costs**
- Budget constraint: 6,000€
- Which sites would they choose?



9 EV 6,000€	8 EV 4,000€	7 EV 4,000€
6 EV 4,000€	5 EV 2,500€	4 EV 2,000€
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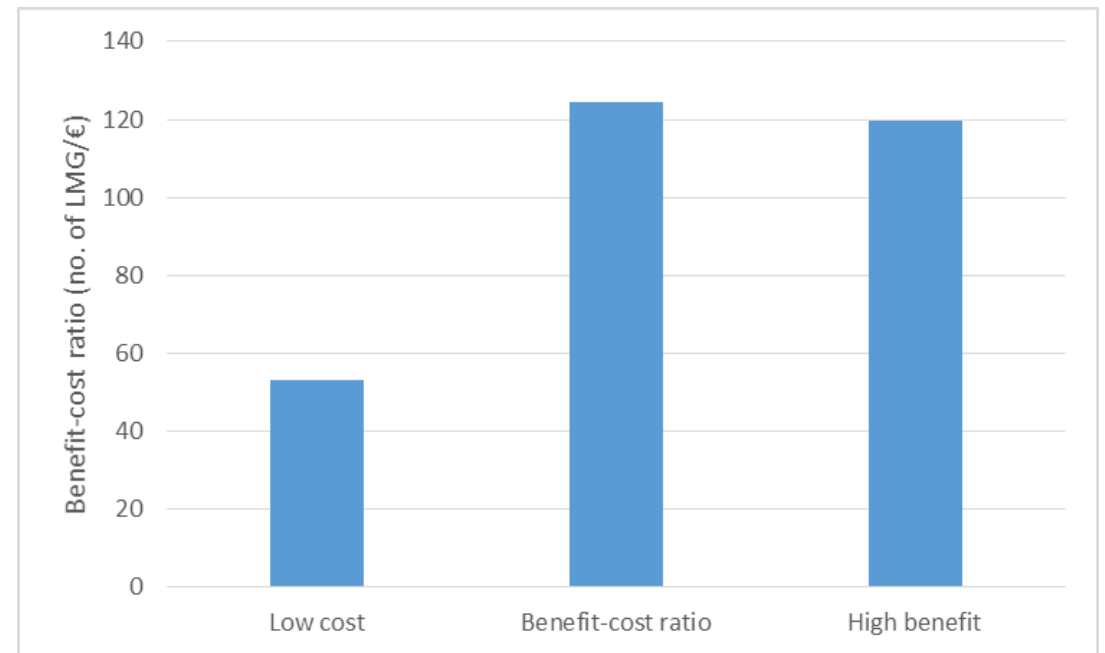
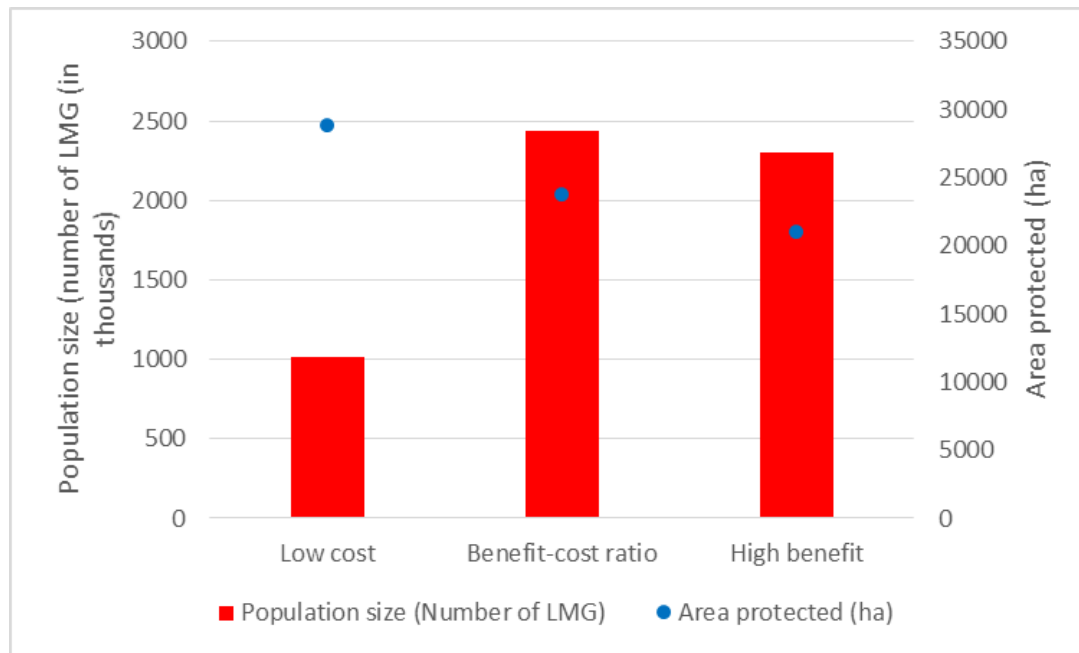
Conservation outcomes of different measures

Conserving the LMG with the conservation measure “**very early mowing**” according to the strategies “low cost”, “high benefit” and “benefit-cost ratio” leads to the following outcomes:



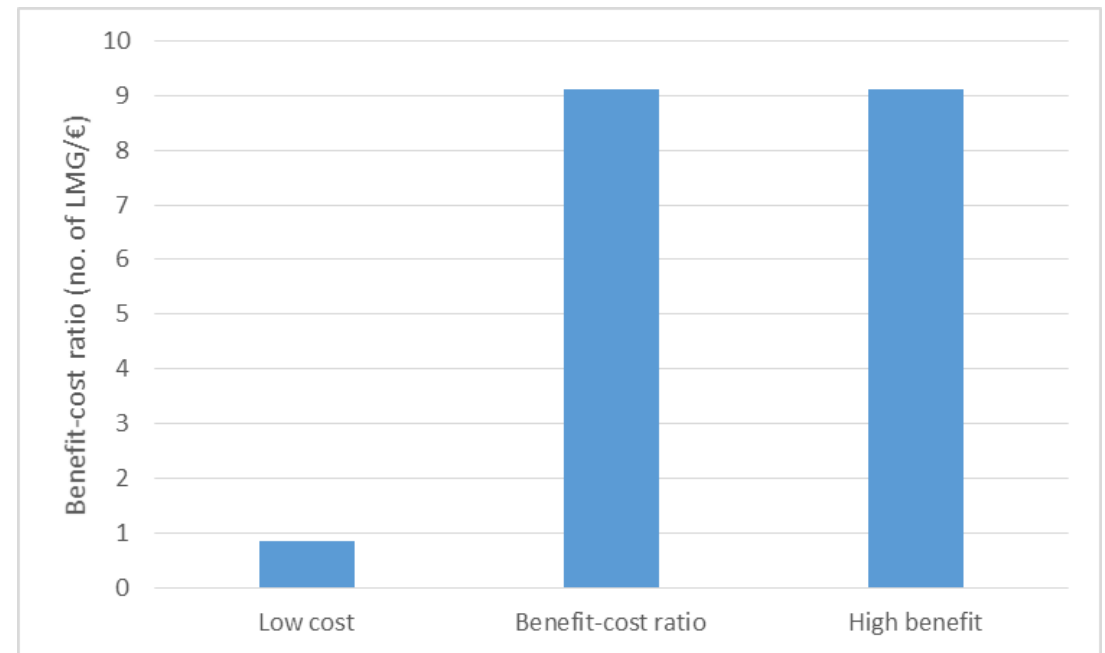
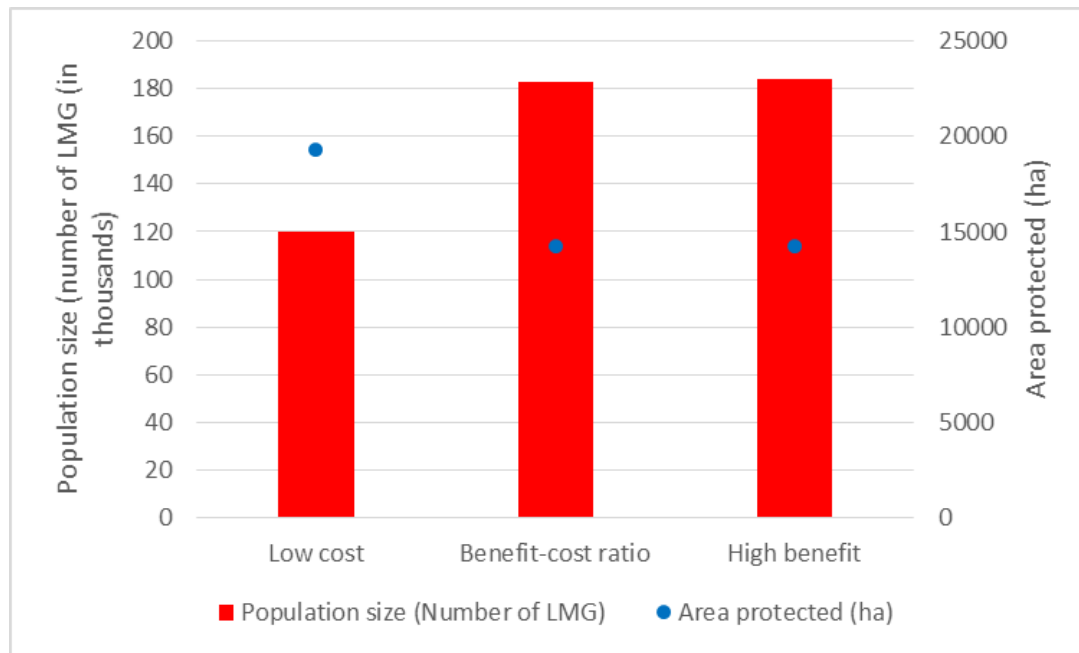
Conservation outcomes of different measures

Conserving the LMG with the conservation measure “**early mowing**” according to the strategies “low cost”, “high benefit” and “benefit-cost ratio” leads to the following outcomes:



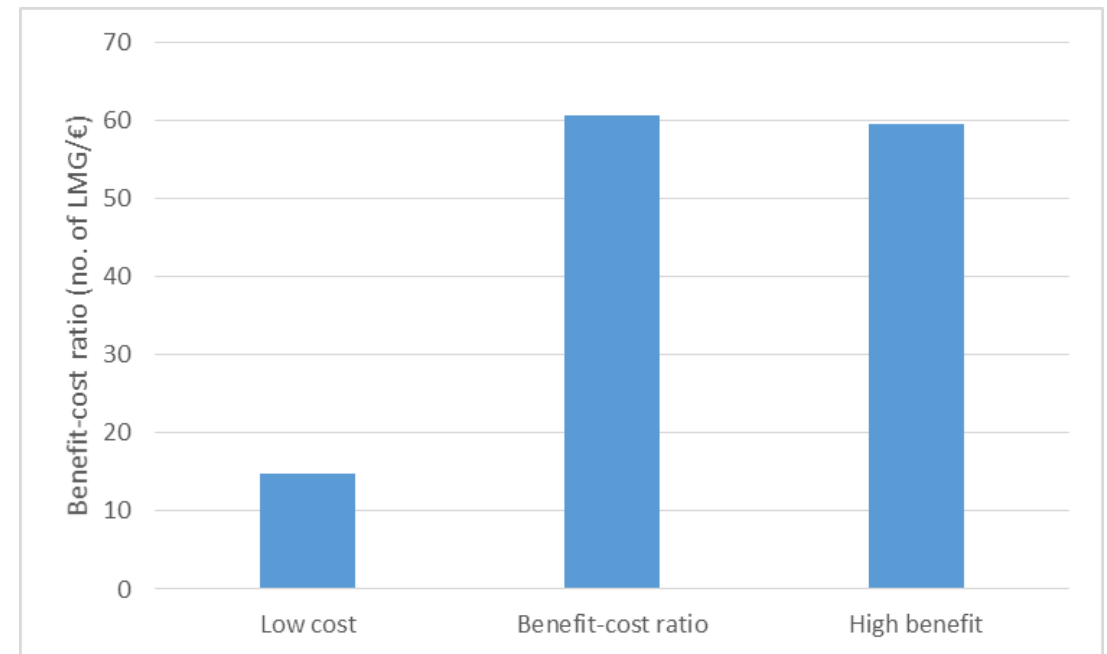
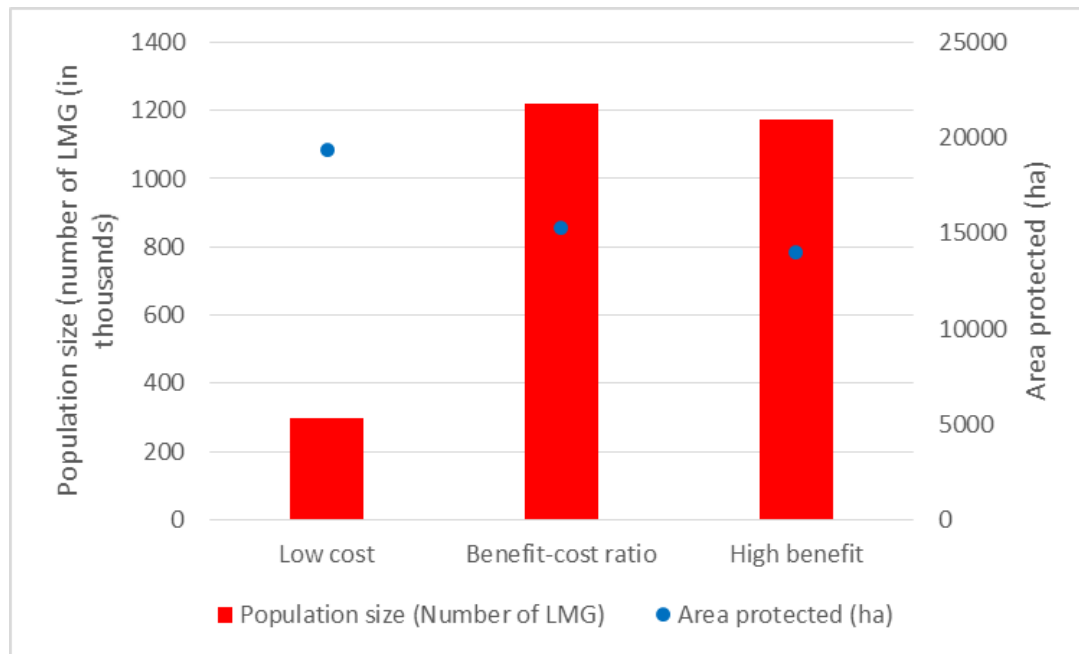
Conservation outcomes of different measures

Conserving the LMG with the conservation measure “**late mowing**” according to the strategies “low cost”, “high benefit” and “benefit-cost ratio” leads to the following outcomes:



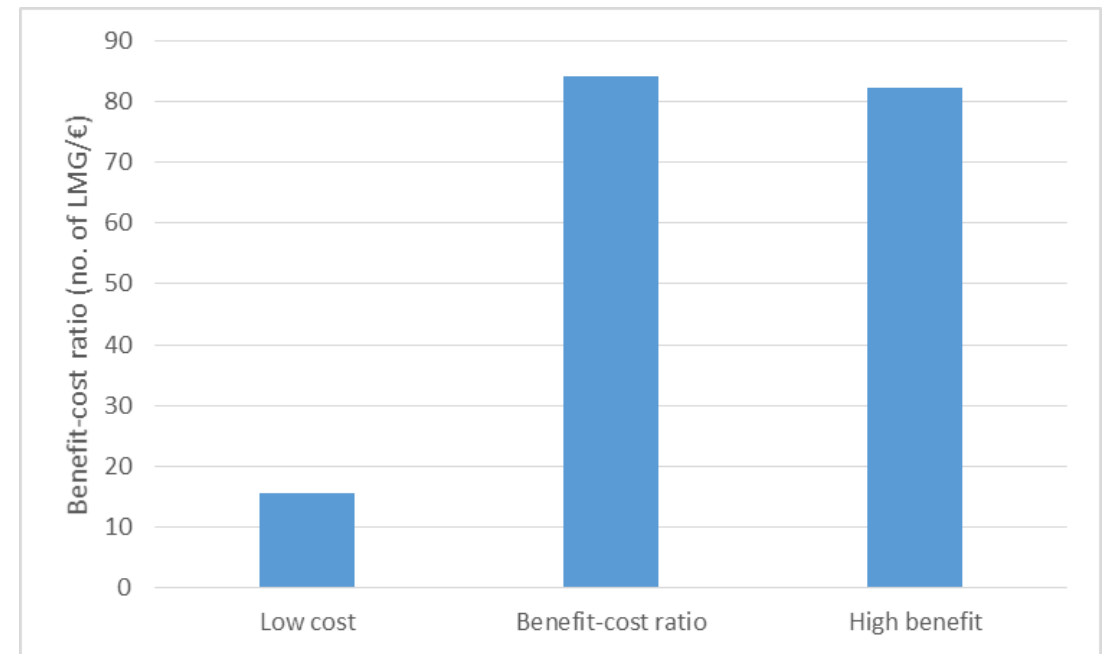
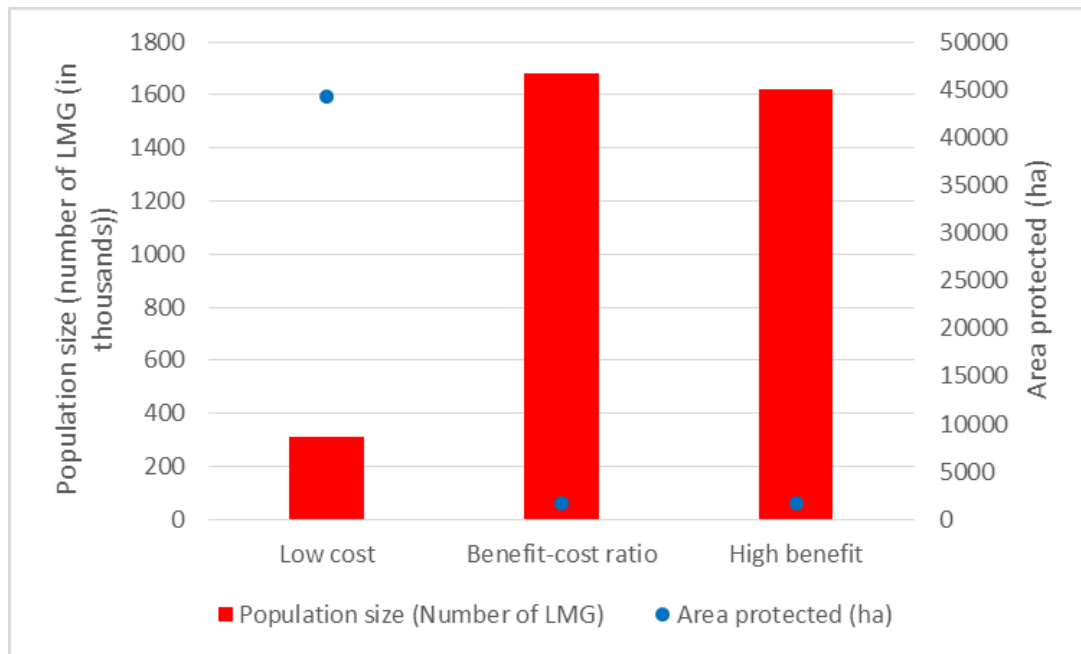
Conservation outcomes of different measures

Conserving the LMG with the conservation measure “**very late mowing**” according to the strategies “low cost”, “high benefit” and “benefit-cost ratio” leads to the following outcomes:



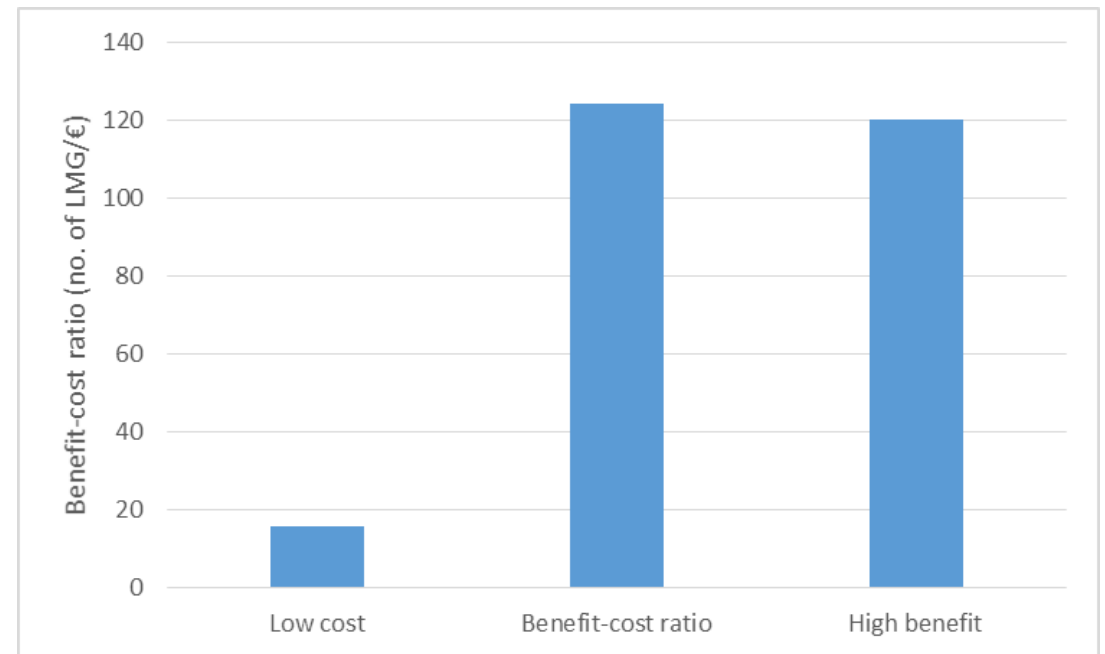
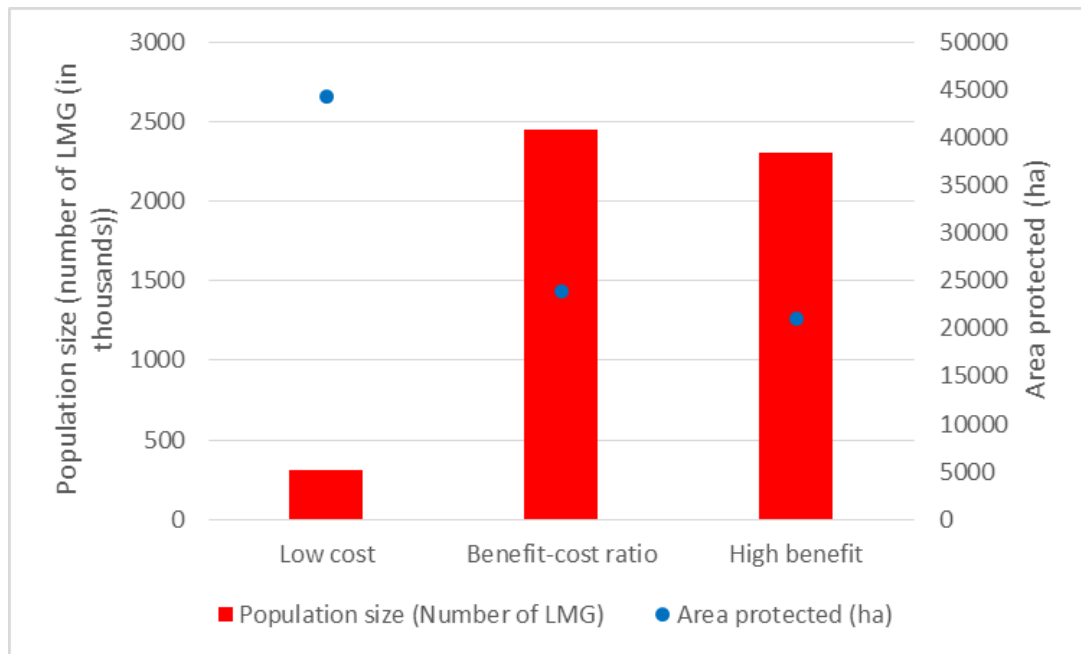
Conservation outcomes of different measures

Conserving the LMG with the conservation measure “**mowing twice**” according to the strategies “low cost”, “high benefit” and “benefit-cost ratio” leads to the following outcomes:



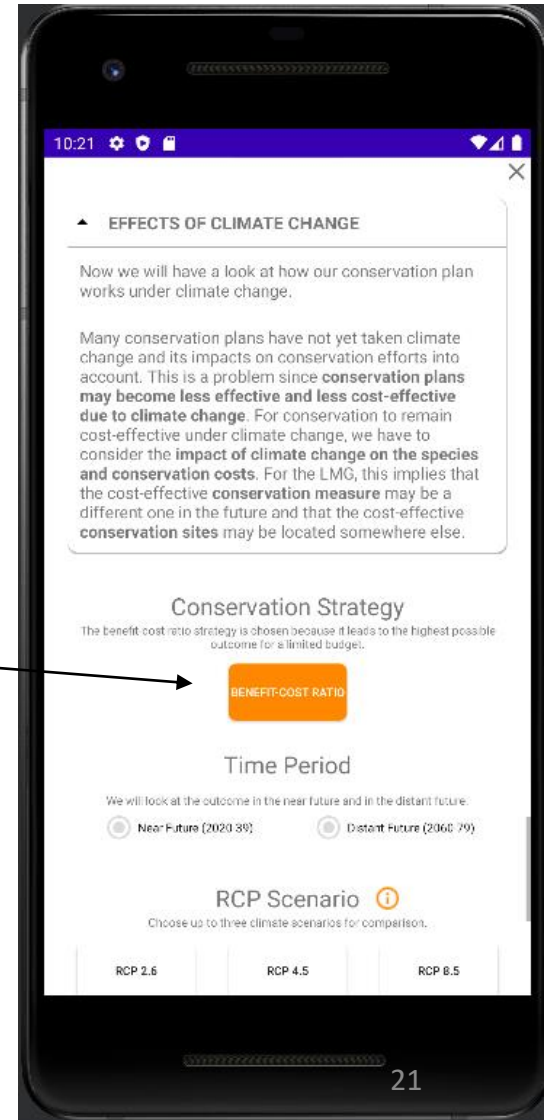
Conservation outcomes of different measures

Conserving the LMG with **any conservation measure** according to the strategies “low cost“, “high benefit“ and “benefit-cost ratio“ leads to the following outcomes:



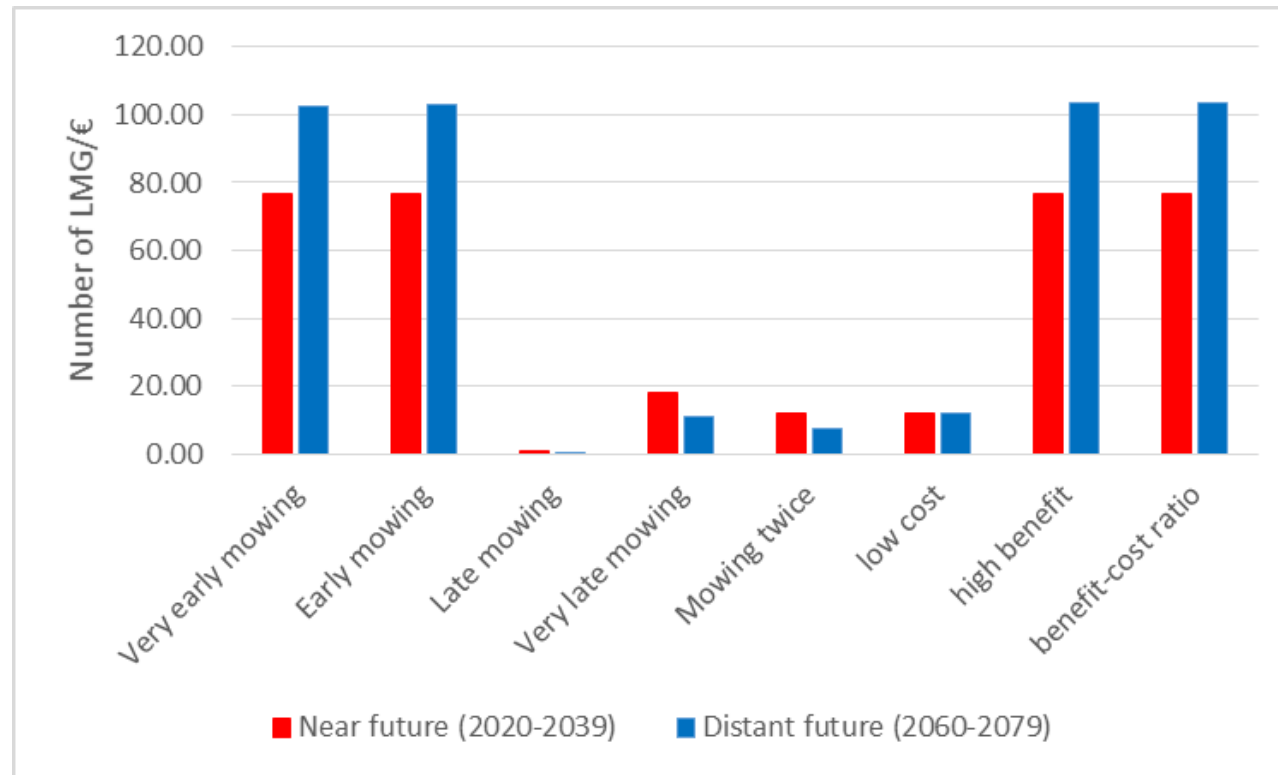
Effects of climate change – additional results

- The following slides provide additional results not shown in the app
- What if a different conservation measure was selected?



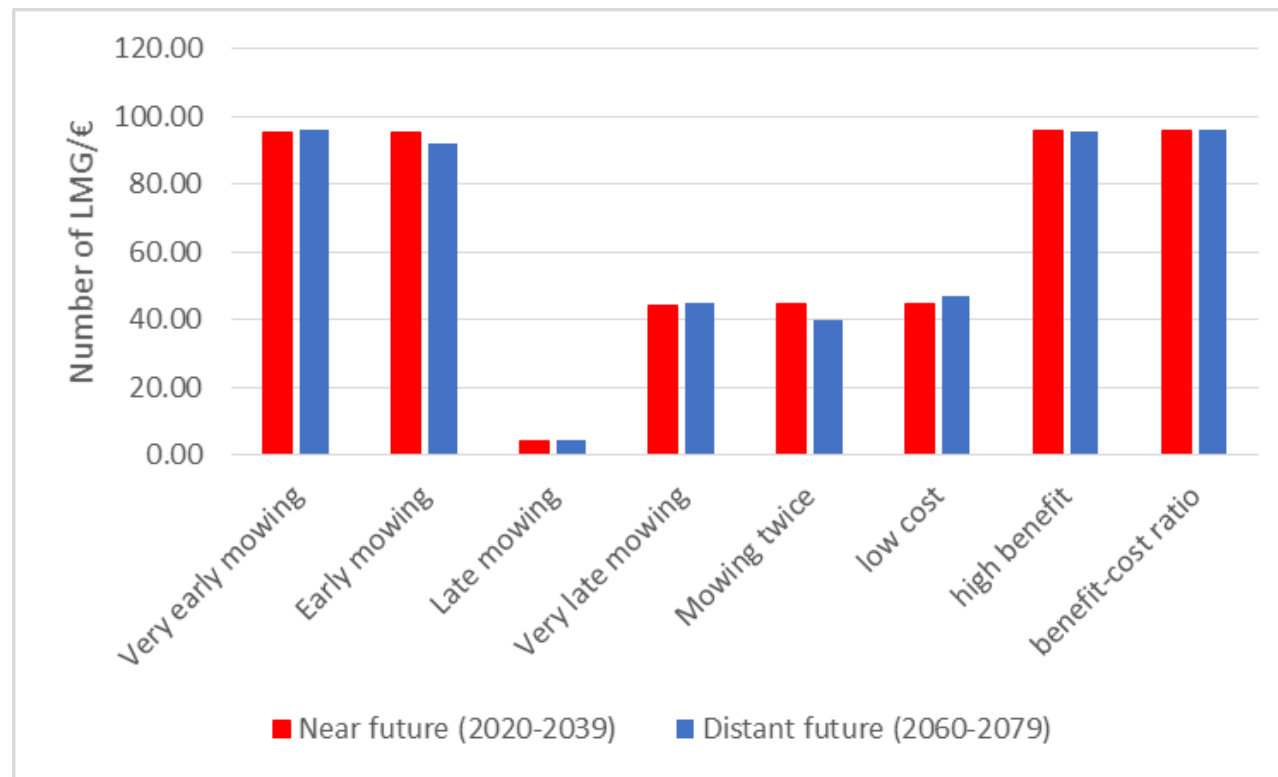
Effects of climate change – additional results

RCP2.6: Choosing individual conservation measures or according to the strategies “low cost“, “high benefit“ and “benefit-cost ratio“ leads to the following outcomes:



Effects of climate change – additional results

RCP4.5: Choosing individual conservation measures or according to the strategies “low cost“, “high benefit“ and “benefit-cost ratio“ leads to the following outcomes:



Effects of climate change – additional results

RCP8.5: Choosing individual conservation measures or according to the strategies “low cost“, “high benefit“ and “benefit-cost ratio“ leads to the following outcomes:

