

Case #5: How should we manage the wolf?

Consequences of being... a misunderstood “bad guy”?

Group role:

- Decide how to manage the wolf in Switzerland? (Eradication, free reintroduction, control...?)
- Plan a management strategy to deal with the consequences of your decision

Present your plan to stakeholders in a 15 minutes presentation

Other groups:

You will be representing the interests of farmers, ecologists, politicians (money wise and popularity) and how the presented plan and decision affects you.

- Are you happy with it?
- How could this be improved?

The red riding hood





The Three Little Pigs



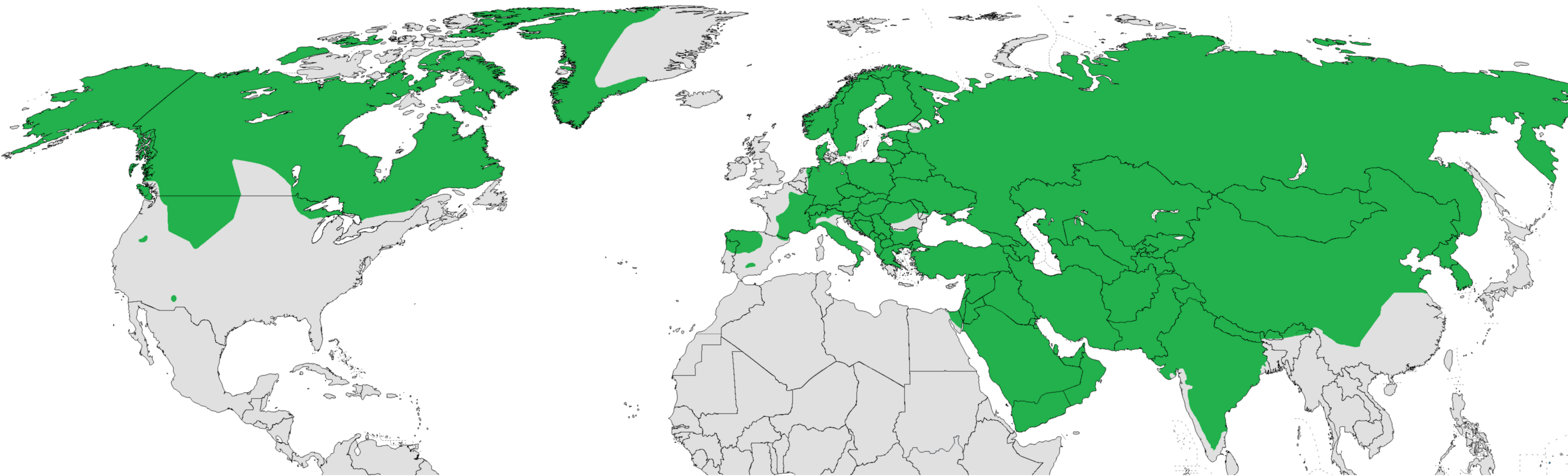
The beauty and the beast



“Wolf in sheep’s clothing” – Popular

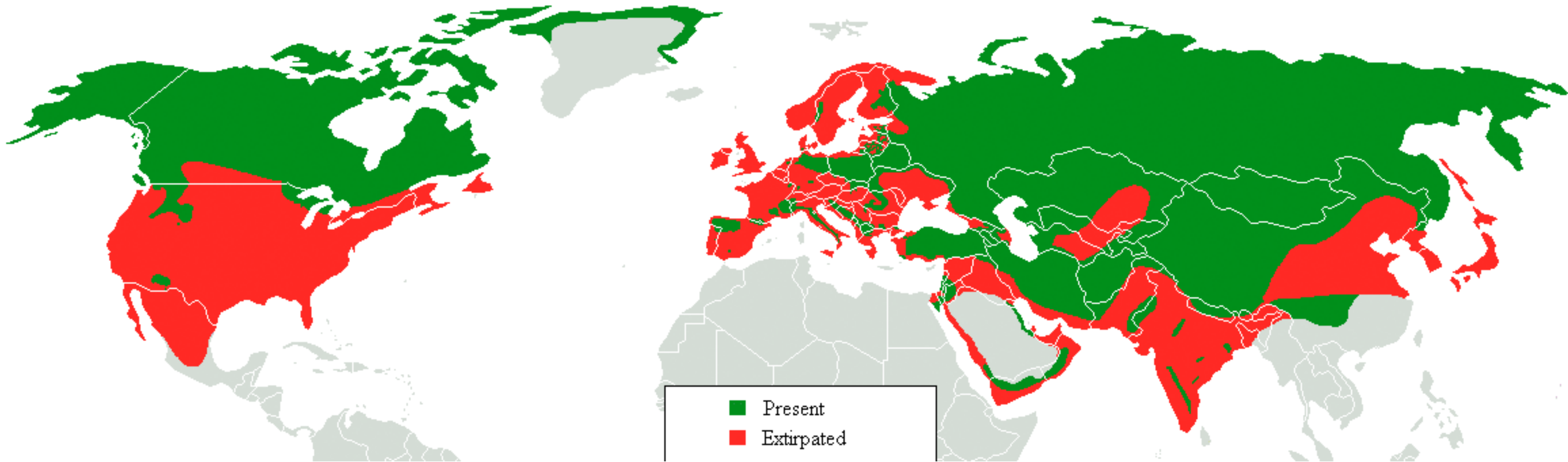


Canis lupus



“Wolves occur across Eurasia and North America. However, **deliberate human persecution** because of livestock predation and fear of attacks on humans **has reduced the wolf's range to about one-third of its historic range**; the wolf is now extirpated (locally extinct) from much of its range in Western Europe, the United States and Mexico, and completely in the British Isles and Japan”. - Wikipedia

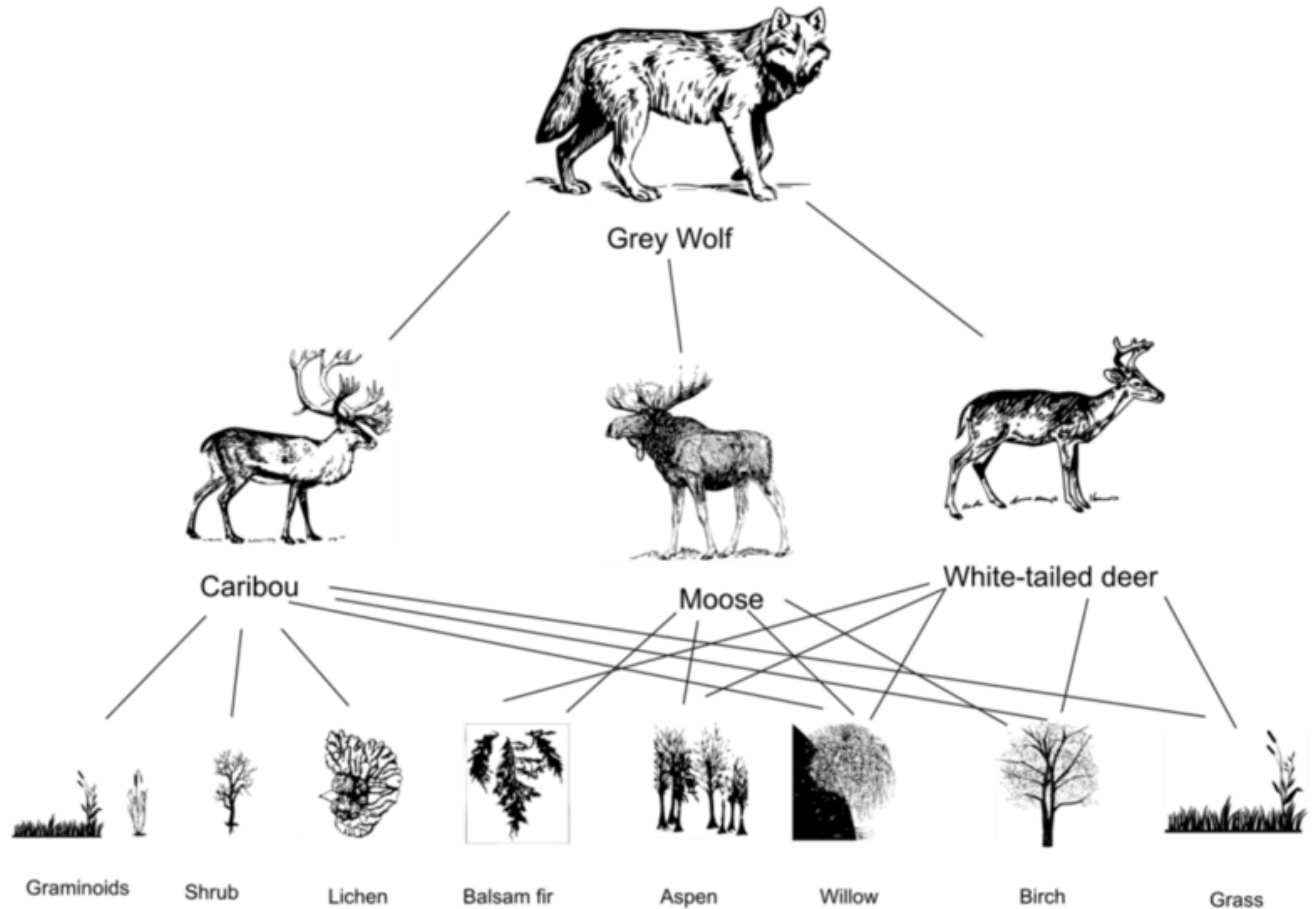
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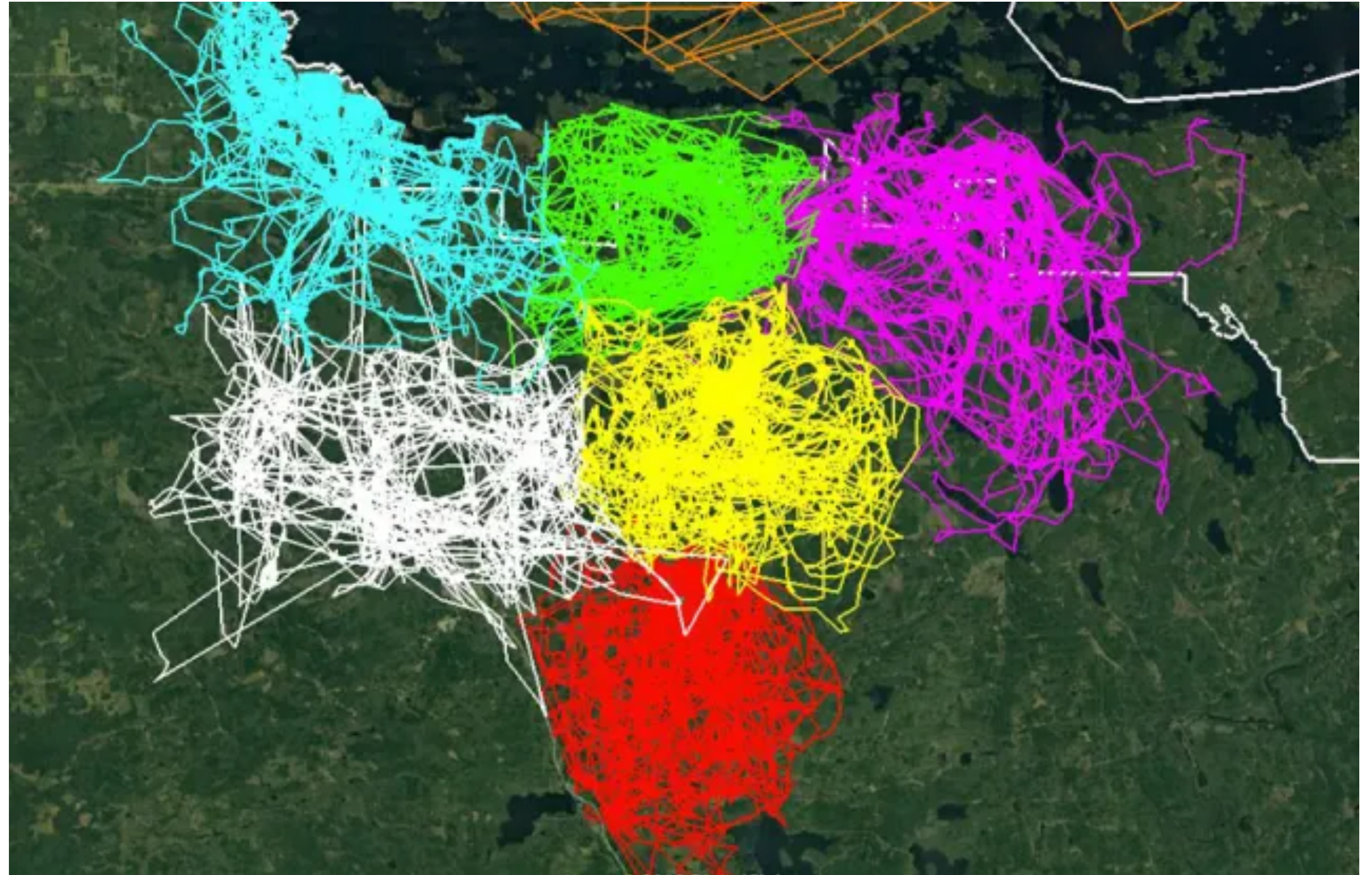
- **Carnivore**
- **Top-chain predator**
- **Social**
- Territorial
- Key species



Global change effects on boreal plants: phenology shifts, nutrient dilution, water stress, wildfire, snow depth

Canis lupus

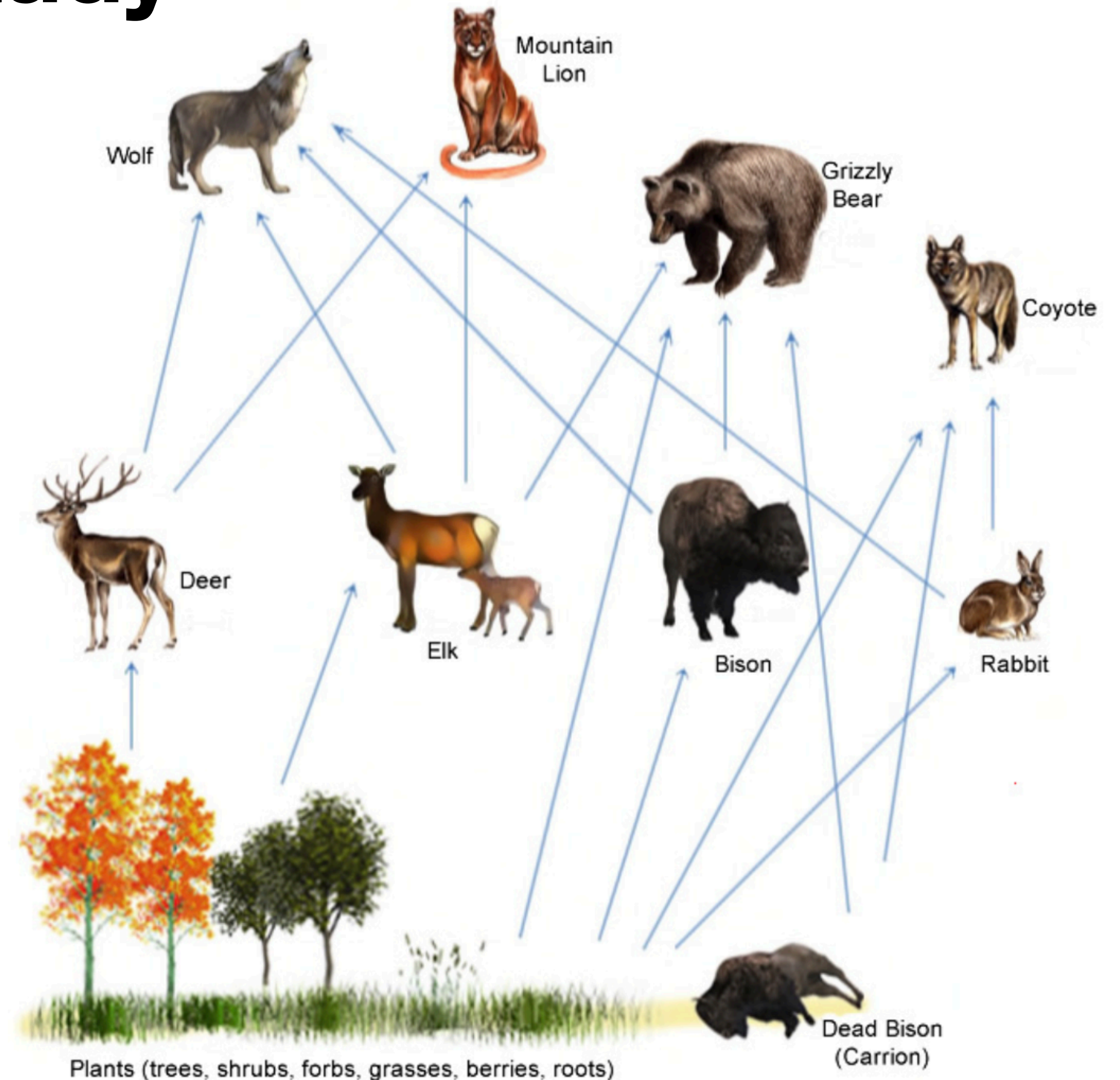
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Voyageurs Wolf Project - Voyageurs National Park in Minnesota (USA)

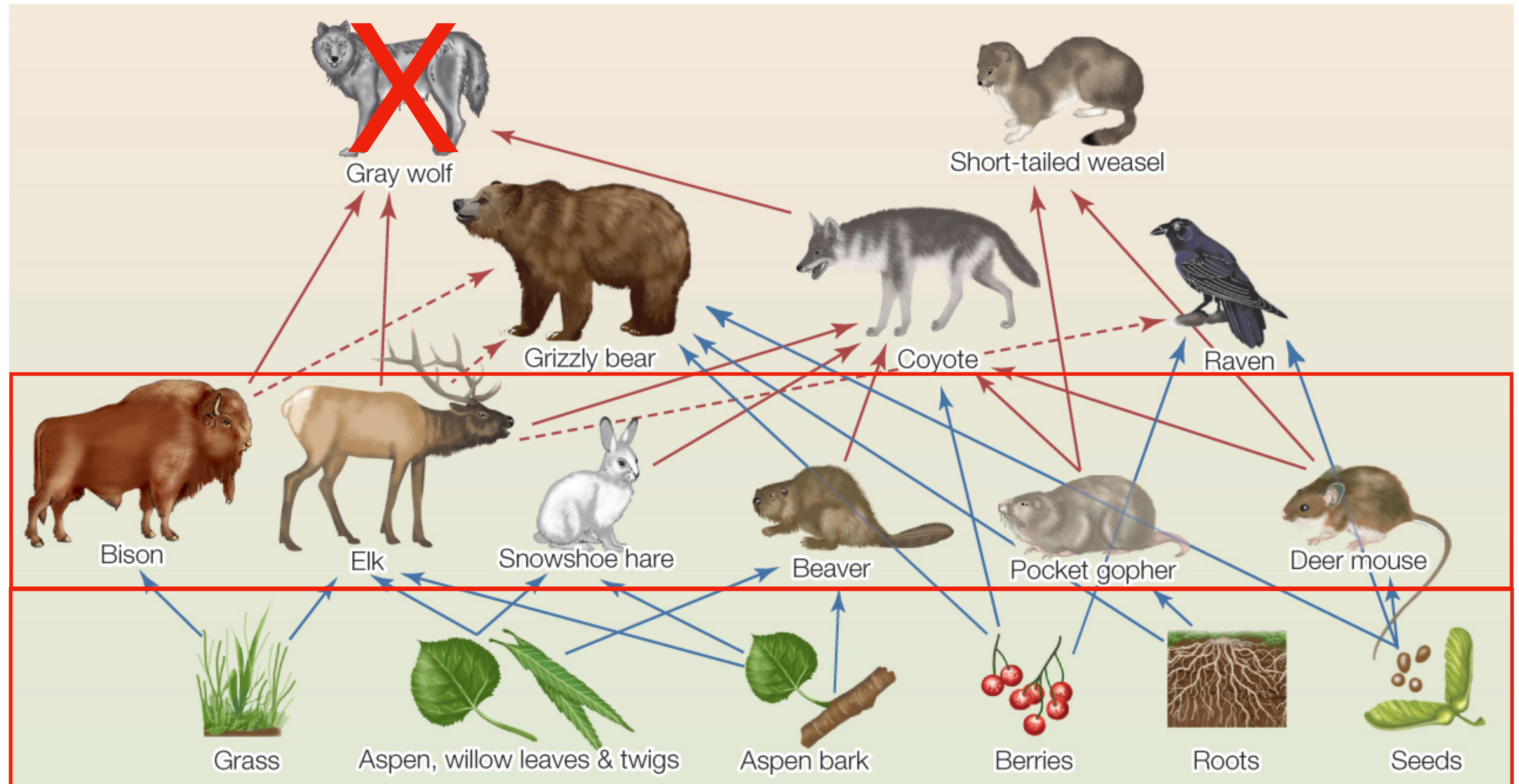
Yellowstone - Case study

- 1926: Yellowstone wolf population was eradicated
- Herbivores stopped being predated.
 - Moved around more
 - Ate and proliferated more
 - More pressure in plants that reduced its number
- Less flowers and seeds
- Less saplings and therefore less forest regeneration
- Less insects, birds and small mammals.
- Less diversity and heterogeneity of the Parc

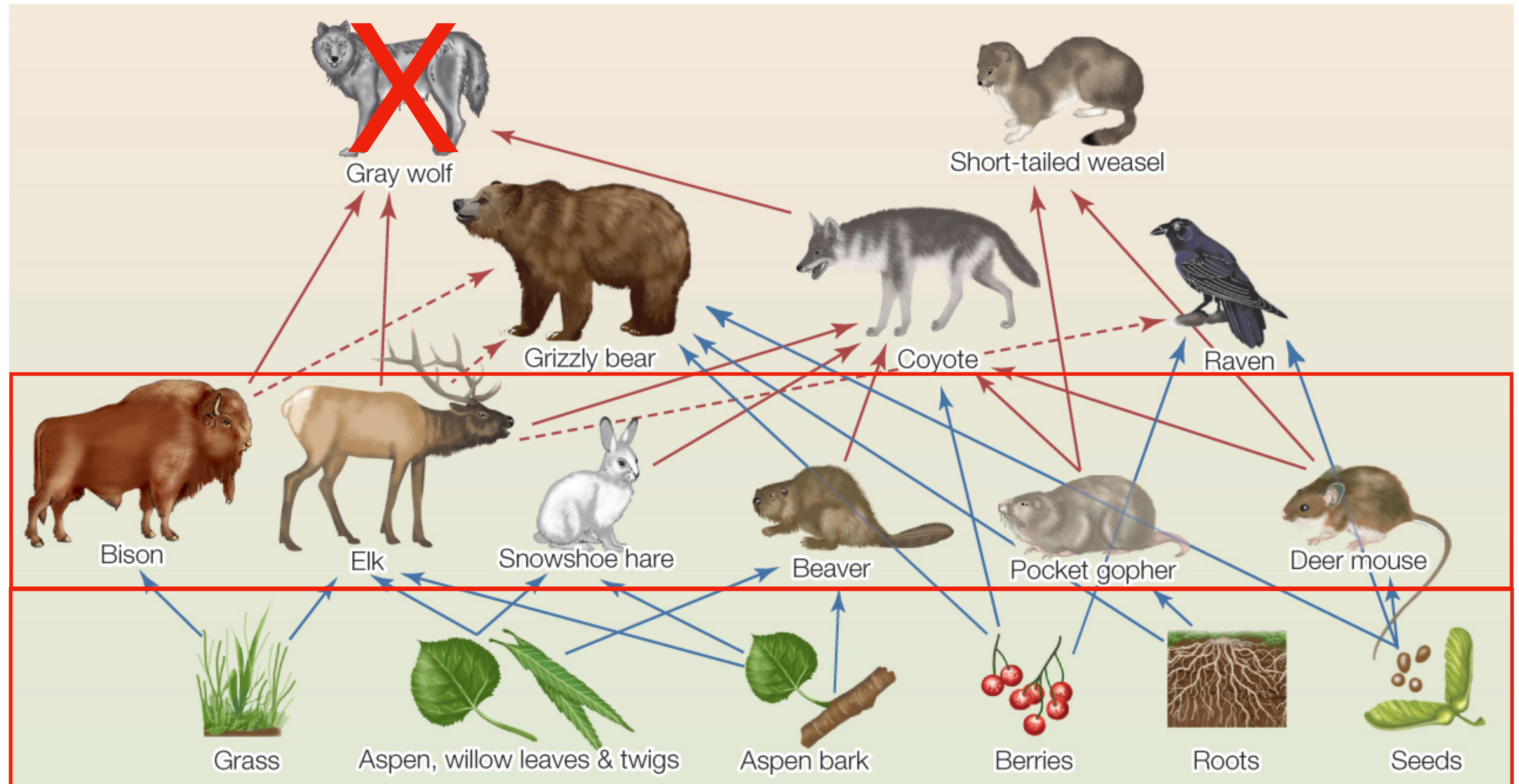


HOW WOLVES CHANGE RIVERS

The trophic cascade



The trophic cascade



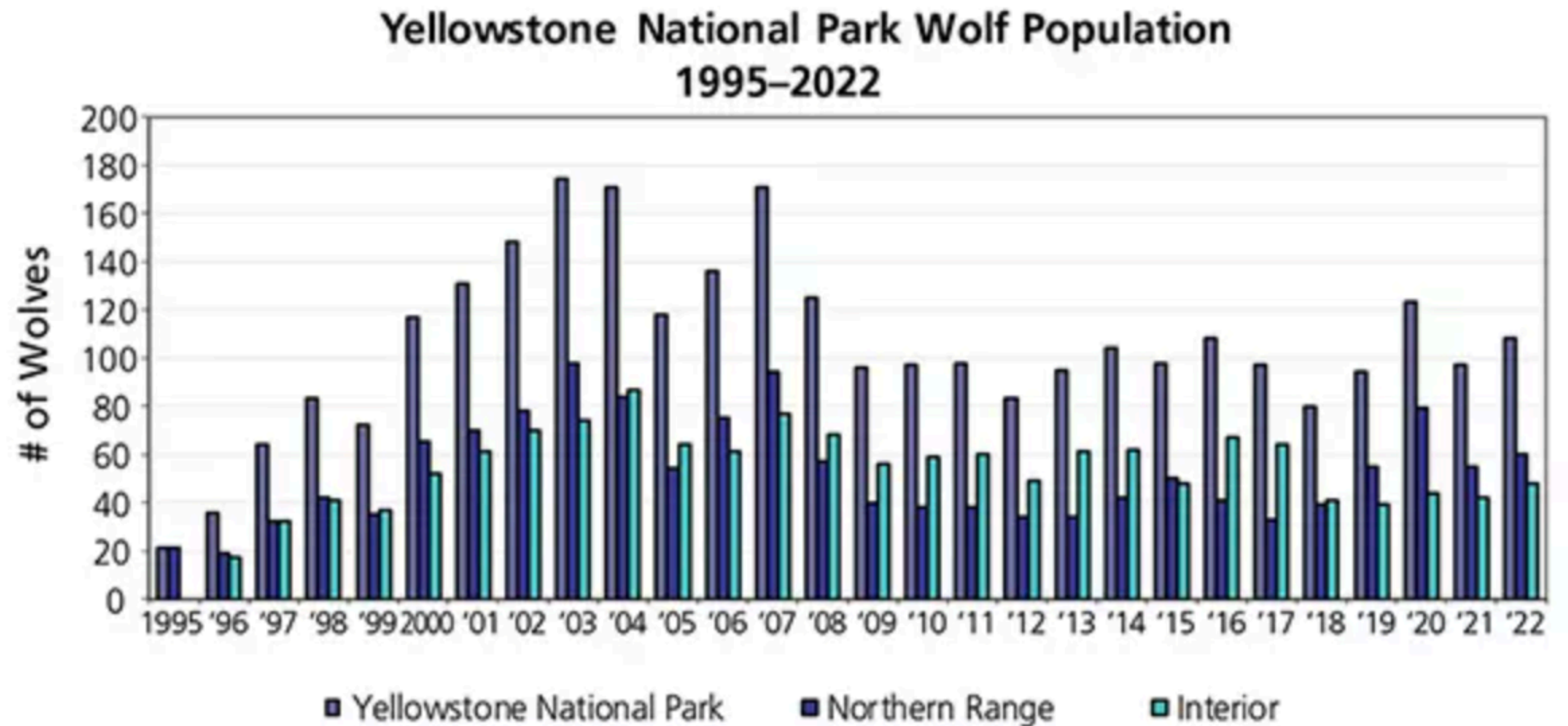
It even affected the riverbed!

- Less beaver and less roots: more erosion, straighter shallower rivers.
- Hotter waters, affecting the salmon and amphibian populations.
- Less vegetation, less water retention capacity. Therefore, drier ecosystems.



Reintroduction process

- 1995: 46 wolves were reintroduced (in 9.000km², twice of Valais' surface)
- Their presence changed herbivores behaviour.
- In 30 years, the ecosystem re-equilibrated



Before

Elk

Coyote

BEFORE: Without cunning predators keeping them on their toes, elk mow down lush willows and other vegetation along rivers and streams.

AFTER: More alert for wolves, elk spend less time feeding in some streamside areas and instead spread across the landscape.

BEFORE: With plants chewed down and little vegetation to hold them in place, stream banks wash away and silt darkens water.

AFTER: Willows and other plants rebound, their roots stabilizing soil along the edges of streams.

BEFORE: On their own for food.

AFTER: Each wolf in Yellowstone kills an average of two elk per month. Their leftovers become a feast for scavengers, including ravens, eagles and sometimes grizzly bears.

BEFORE: In absence of wolves, coyotes multiply and take over the role of leading predator. But their influence on elk is not as great. Coyotes compete with foxes, depressing fox numbers.

AFTER: Wolves kill many coyotes. With coyotes depressed, rodents and other animals they once preyed on are left as prey for foxes, badgers and eagles.

BEFORE: Sparse streamside greenery offers little for beavers to eat. Few beavers remain to engineer dams.

AFTER: Plants lure more beavers. They build dams, creating ponds that slow streams. Water and plants attract songbirds. Silt settles out, leaving water cleaner, and deeper pools may be cooler and more hospitable for fish.

After

Eagle

Bear

Elk

Elk carcass

Wolf

Fox

Beaver

Beaver dam

Fish

After

BEFORE: Without cunning predators keeping them on their toes, elk mow down lush willows and other vegetation along rivers and streams.

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Rivers and streams

BEFORE: With plants chewed down and little vegetation to hold them in place, stream banks wash away and silt darkens water.

AFTER: Willows and other plants rebound, their roots stabilizing soil along the edges of streams.

Scavengers

BEFORE: On their own for food.

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Coyotes

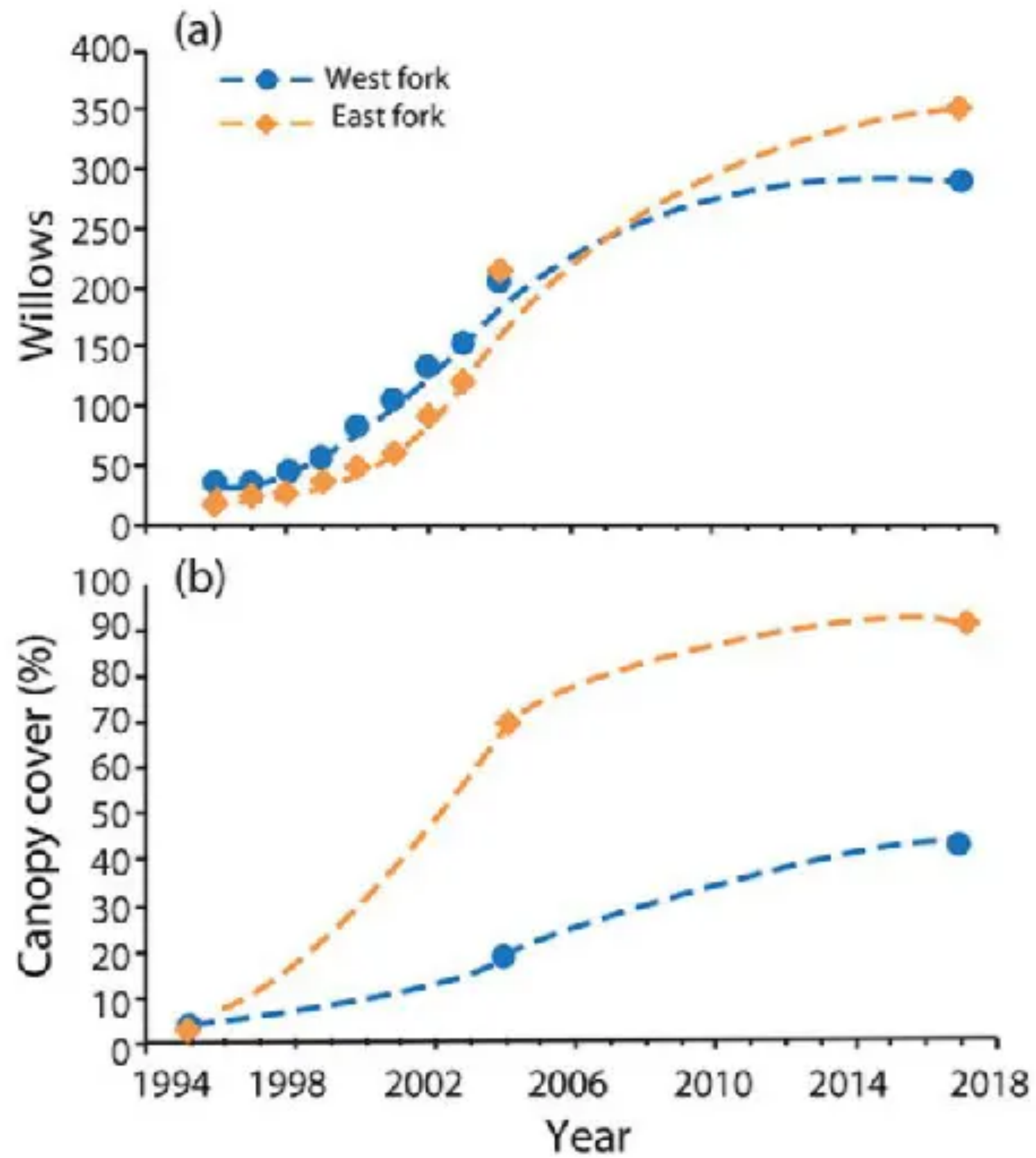
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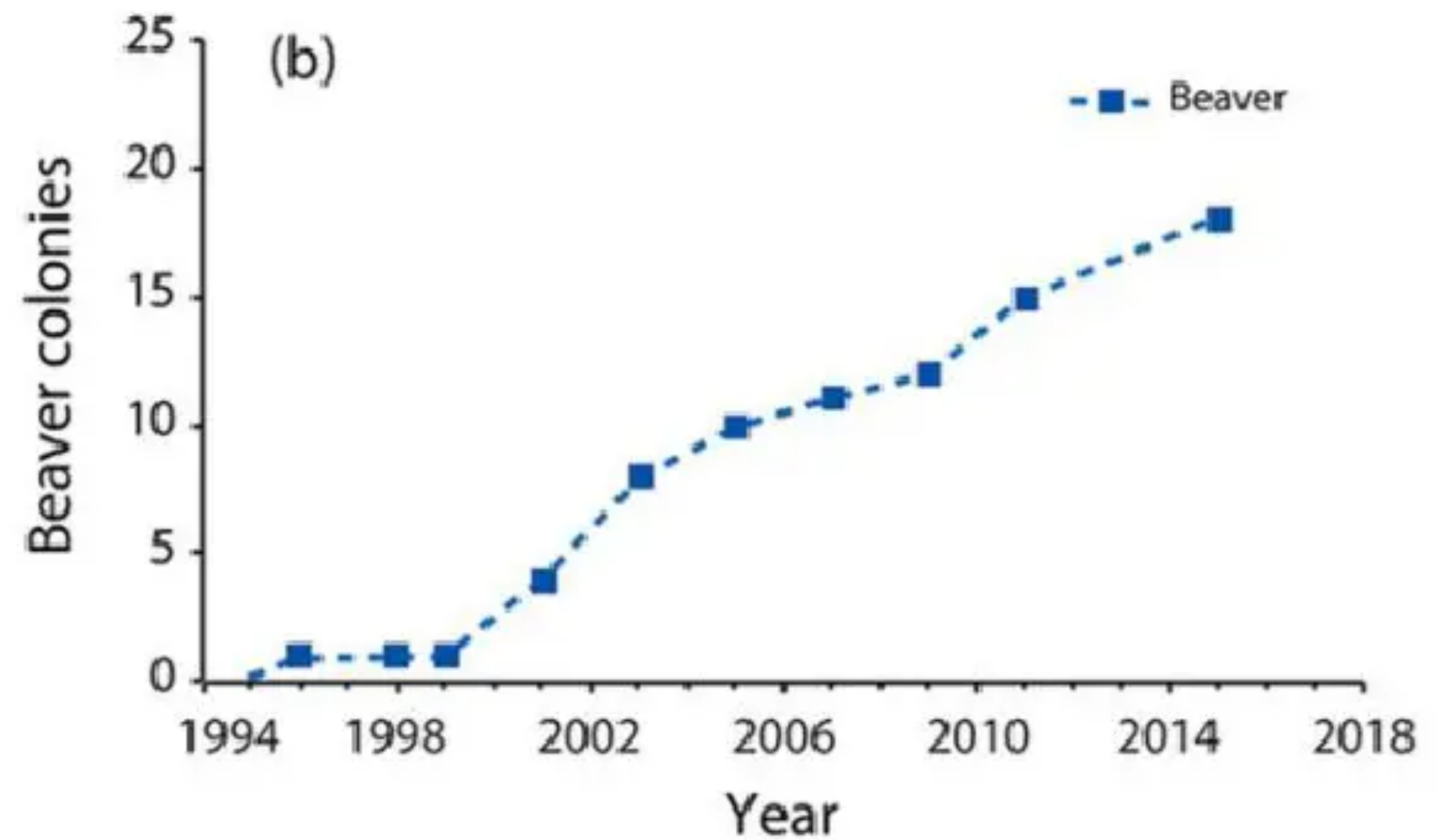
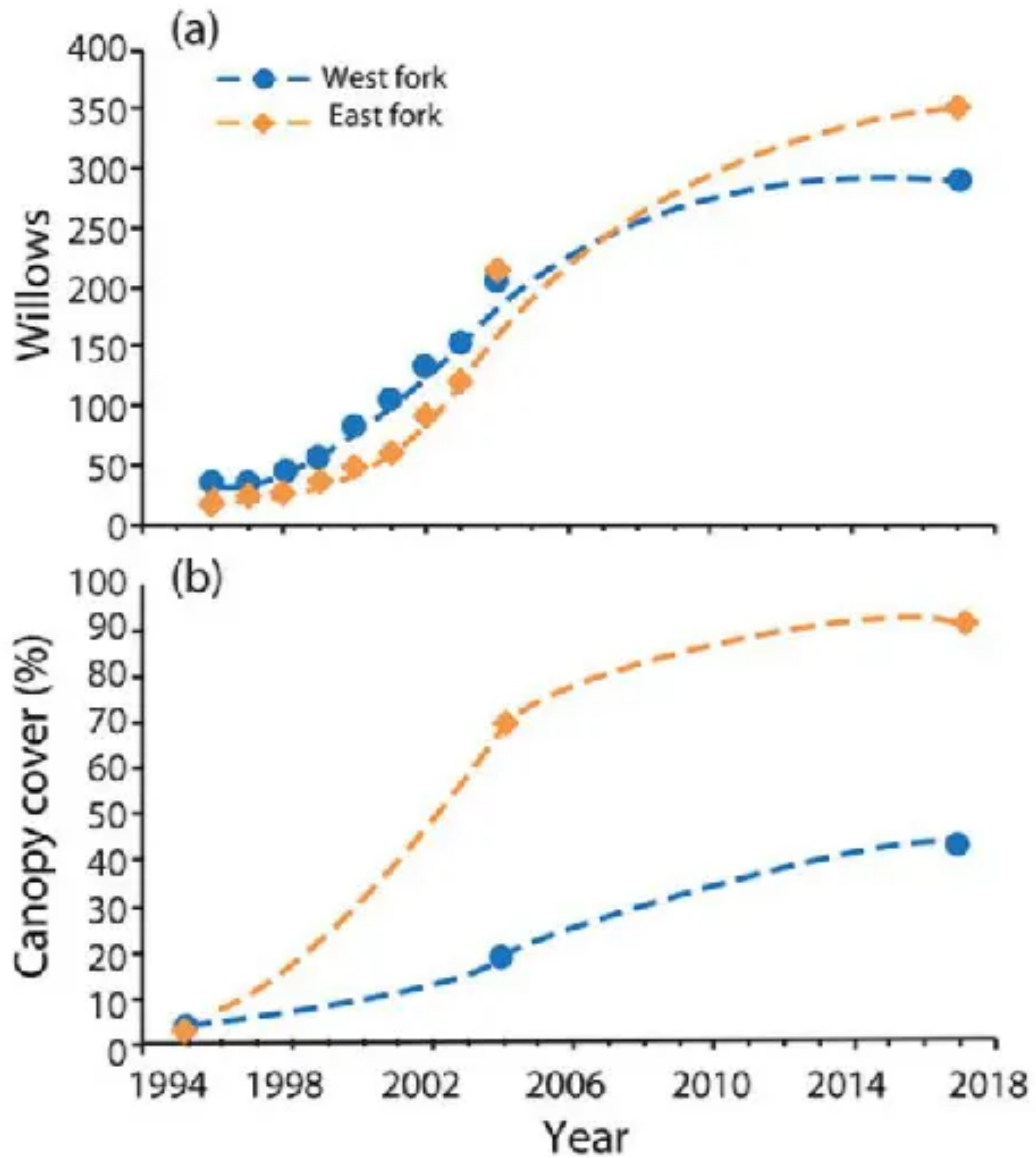
Beavers

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Beschta, Ripple (2019).



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Controversy in the US north west

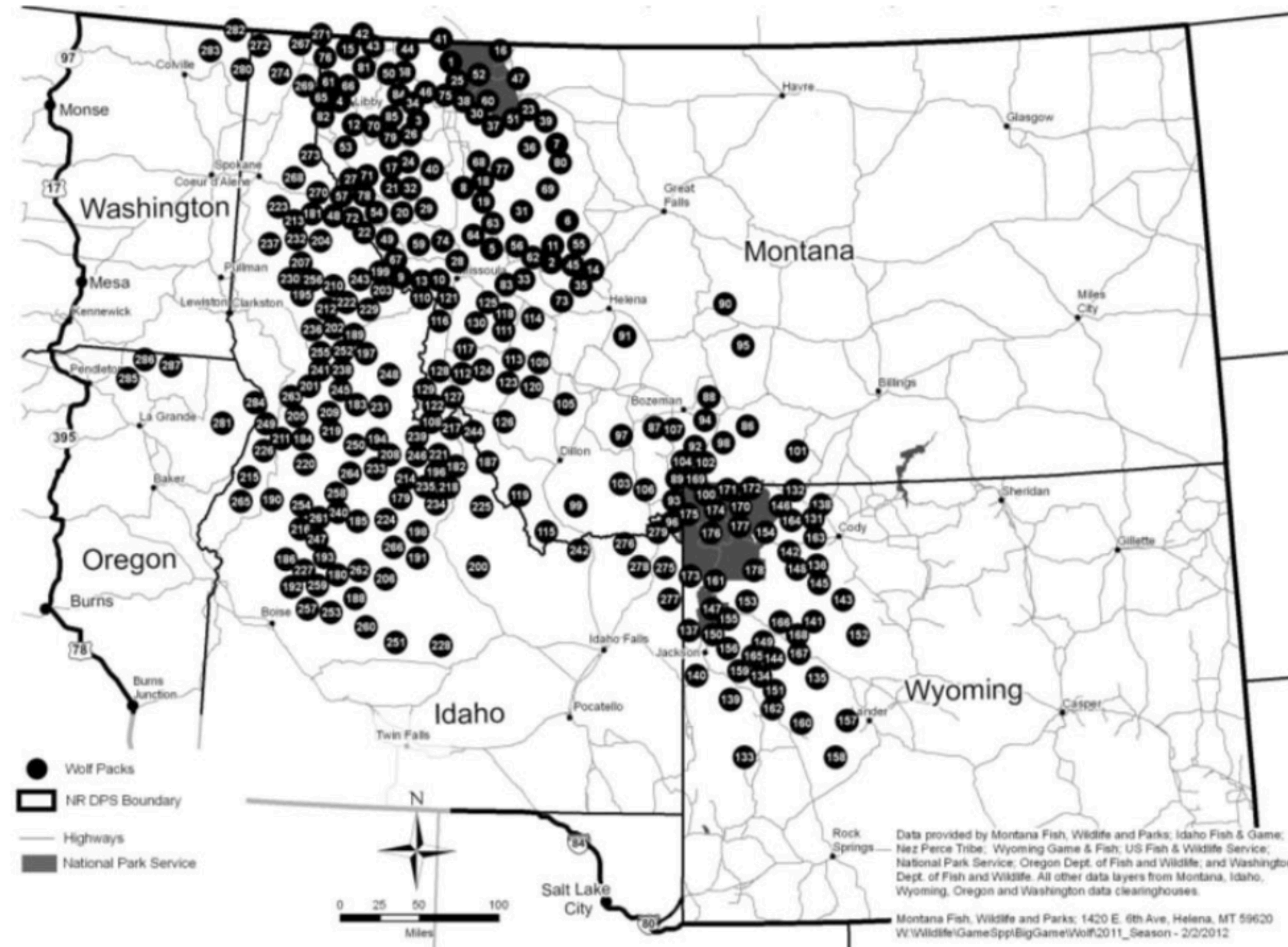
- Should humans interact with the “natural flow” of nature? (1964 Wilderness Act)
- Conflict with human hunters
- Wolves killing and stressing livestock (Tale’s bad guy)

(Smith and Peterson , 2021)



Idaho ranchers

- Ranching is the second most important industry in Idaho
- Cattle attacking hoarding dogs
- Reduced cattle weight, and conception rates (Ramler et al., 2014). About 10 kg per calf, ~ \$6.500.
- Dispersion of herds
- Wildlife grassing in “safe” private lands
- Cattle, dogs and horses fatalities and injures (affecting 435 ranchers in Idaho). From 1-2% to 4-5% deaths
- Idaho gov. provides compensation for confirmed losses by the wolf. \$1.000.



Ramler, J.P., Hebblewhite, M., Kellenberg, D. and Sime, C. (2014), Crying Wolf? A Spatial Analysis of Wolf Location and Depredations on Calf Weight. *American Journal of Agricultural Economics*, 96: 631-656. <https://doi.org/10.1093/ajae/aat100>

Loss of Idaho ranchers

- Land sold and private for public trespassing
- Space reconverted into factories or towns
- Private hunting spaces
- Loss of natural beauty

Further information on the video “Unforeseen impacts caused by lies in Idaho”.



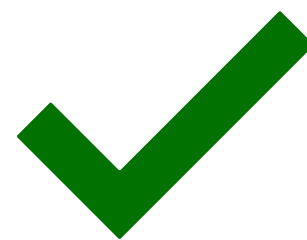
Pros and cons of the wolf reintroduction

More stable and resilient
ecosystems to face climate
change

Less impact of climatic
catastrophes and less economic
investment

Prettier landscapes for human
enjoyment

Preserved or increased diversity



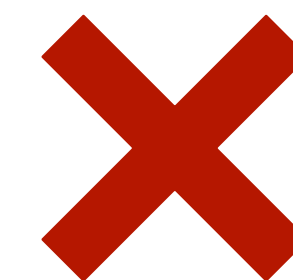
Conflicts with economic
activities that can cause:

Change of industry

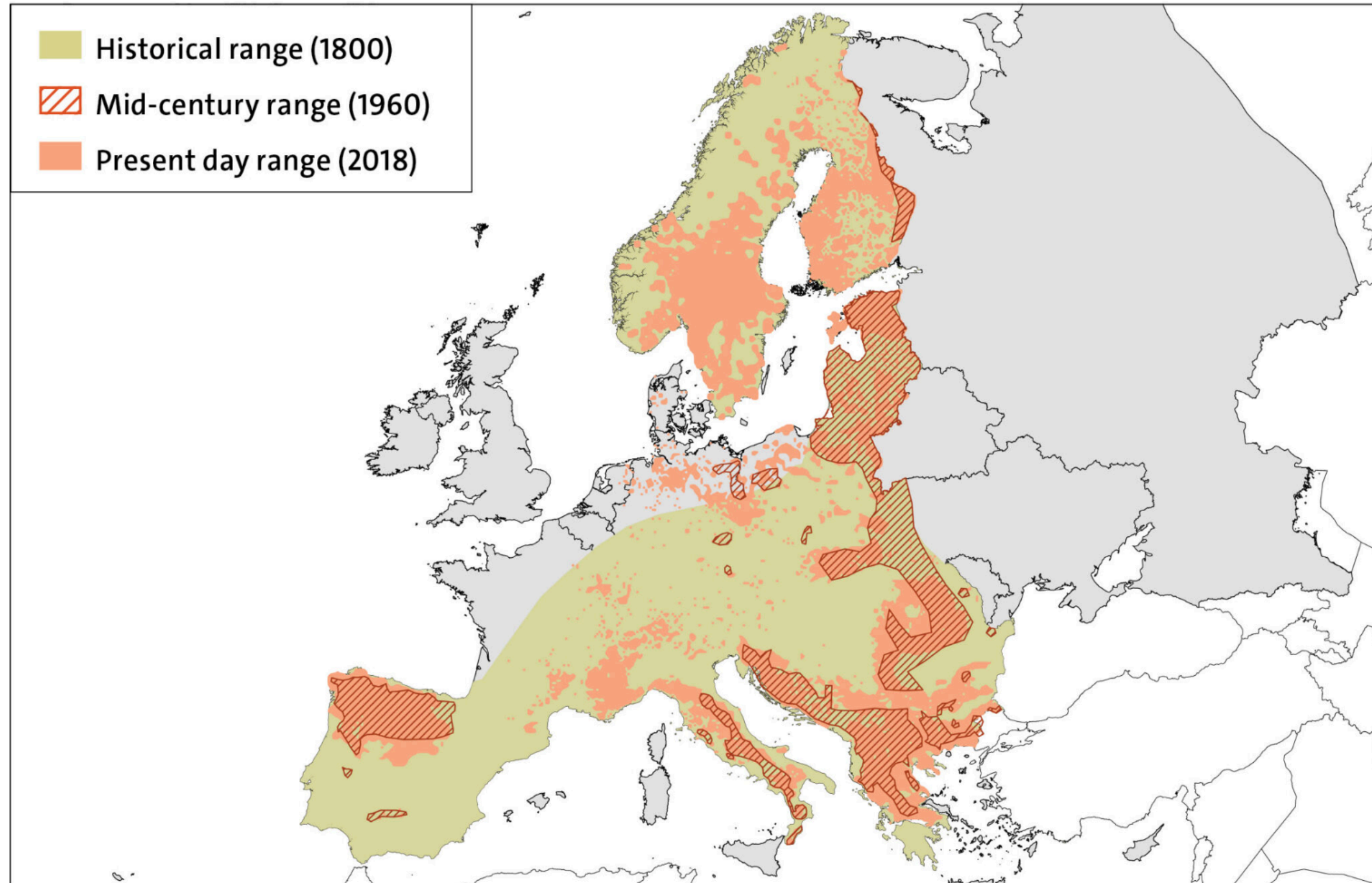
Landscape modification

More investment in government
subsidies

Social and political instability



What about Europe?



Rewilding Europe's latest European Wildlife Comeback Report (2022)

The wolf in Europe with numbers

- **25% range expansion in Europe** on the decade (21500 individuals in 2022 vs 17000 in 2016)
- The risks for wolf attacking humans are “above zero, but far too low to calculate” (**11 non-fatal attacks to humans in 18 years**. 0 fatal attacks reported).

(Norwegian institute for Nature Research)

- 221 fatal cattle-related fatalities between 2000 and 2015.

Von der Leyen is campaigning hard — against the wolf

Ever since the Commission president's pony, Dolly, was killed by a wolf in 2022, the large carnivore has been in von der Leyen's sights.

At stake is whether the wolf's protection status should be reduced from "strictly protected" to "protected," allowing the animals to be killed more easily if they threaten livestock.

According to the Commission's own estimates, there are about 20,000 wolves in Europe and 0.06 percent of farmers' sheep fall victim to them every year.

<https://www.politico.eu/article/von-der-leyen-campaigning-hard-against-the-wolf/>



Drama

WWF's opinion



- **Fact 1: Wolves in Europe are NOT dangerous to humans.**
- **Fact 2: Wolves play a key role in maintaining healthy ecosystems and biodiversity**
- **Fact 3: We already have effective tools available to protect livestock**
- Fact 4: Shooting wolves to protect livestock is ineffective and counterproductive
- Fact 5: Preventive measures are the solution to achieve coexistence
- Fact 6: The wolf enjoys strong public support, including from the EU's inhabitants of rural areas
- Fact 7: Member States have ample flexibility to address potential problems with wolves
- Fact 8: The impact of wolves on livestock in the EU is very small
- Fact 9: Wolves can bring benefits to local communities
- Fact 10: There are numerous success stories of coexistence in Europe
- Fact 11: Wolf populations are recovering but they are far from favourable status
- Fact 12: Wolves have returned naturally across Europe
- Fact 13: As a top predator, it's a wolf's natural behaviour to kill vulnerable ungulates

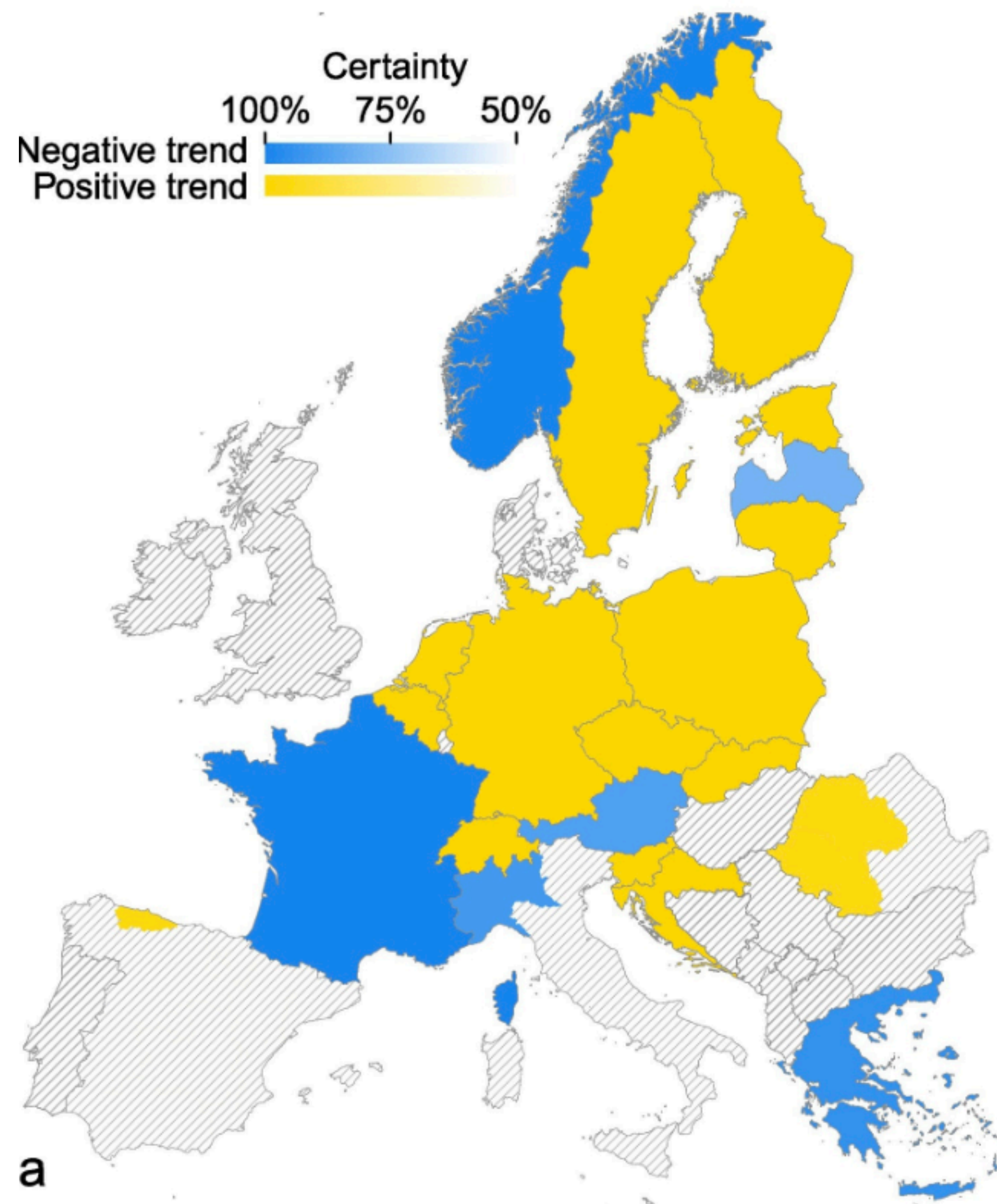
EU measures to protect livestock

- **Economic compensation** for fatalities, train heard dogs and install **electric fences** (Most effective according to Oliveira et al. (2021)). Example: In Norway, the average number of livestock killed per large carnivore is 34, compared to 0.85 in Sweden. The major difference is that Swedish sheep are kept behind fences (often electrified) while Norwegian sheep graze freely, without protection.

In Germany, data has suggested the **effectiveness of preventive measures**. With 3.5% more attacks across the country compared to the year before, the number of livestock killed or injured fell by 15%. Farm animal attacks mostly happen in areas with no preventive measures where wolves have returned after a considerable absence.

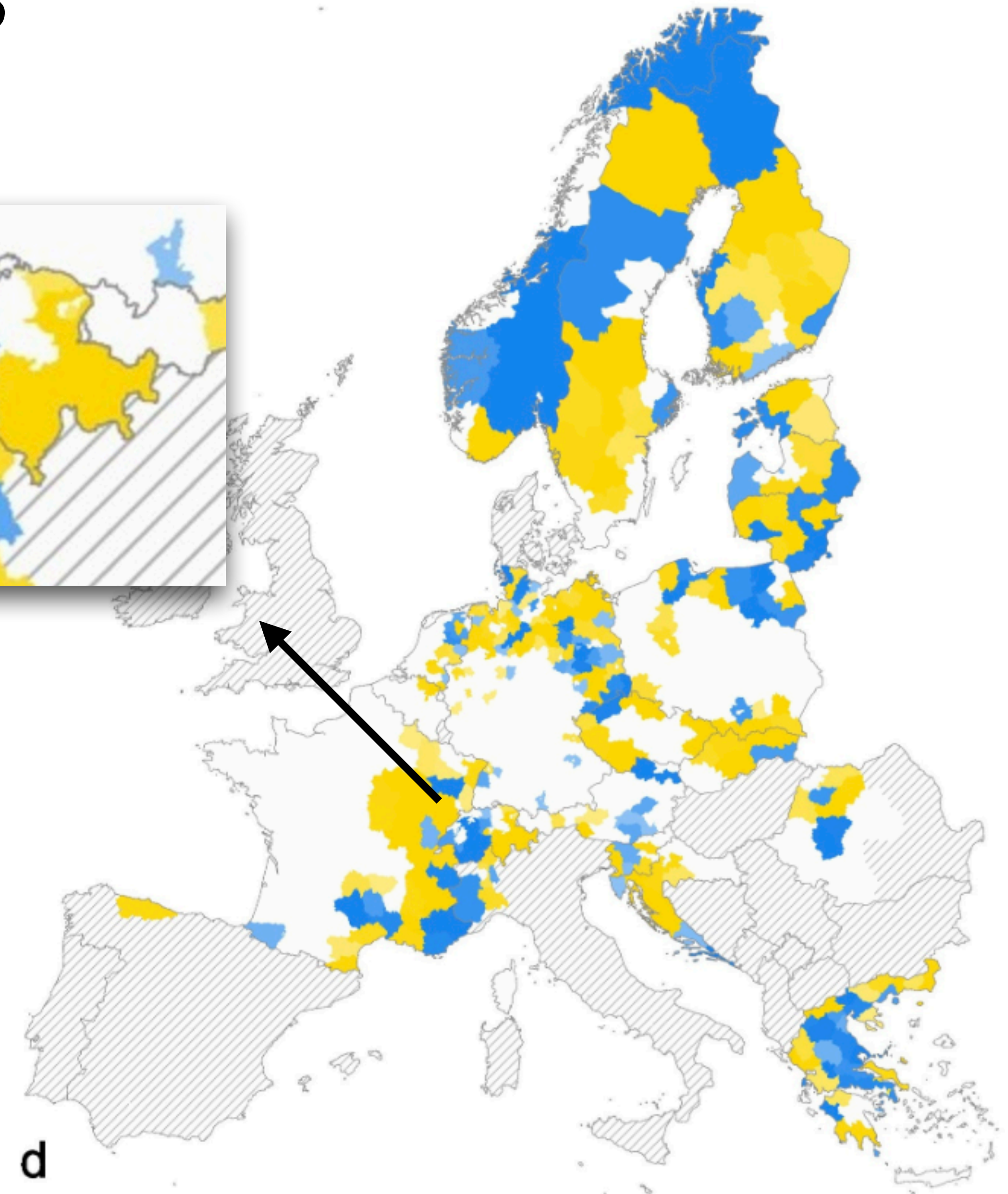
- **Guideline document** (118 pages!) describing good practices and tools to prevent and compensate wolf attack to cattle.
- **Educational programs** for herders and general public

Tend in livestock fatalities



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Singer et al., 2023



d

WWF's opinion



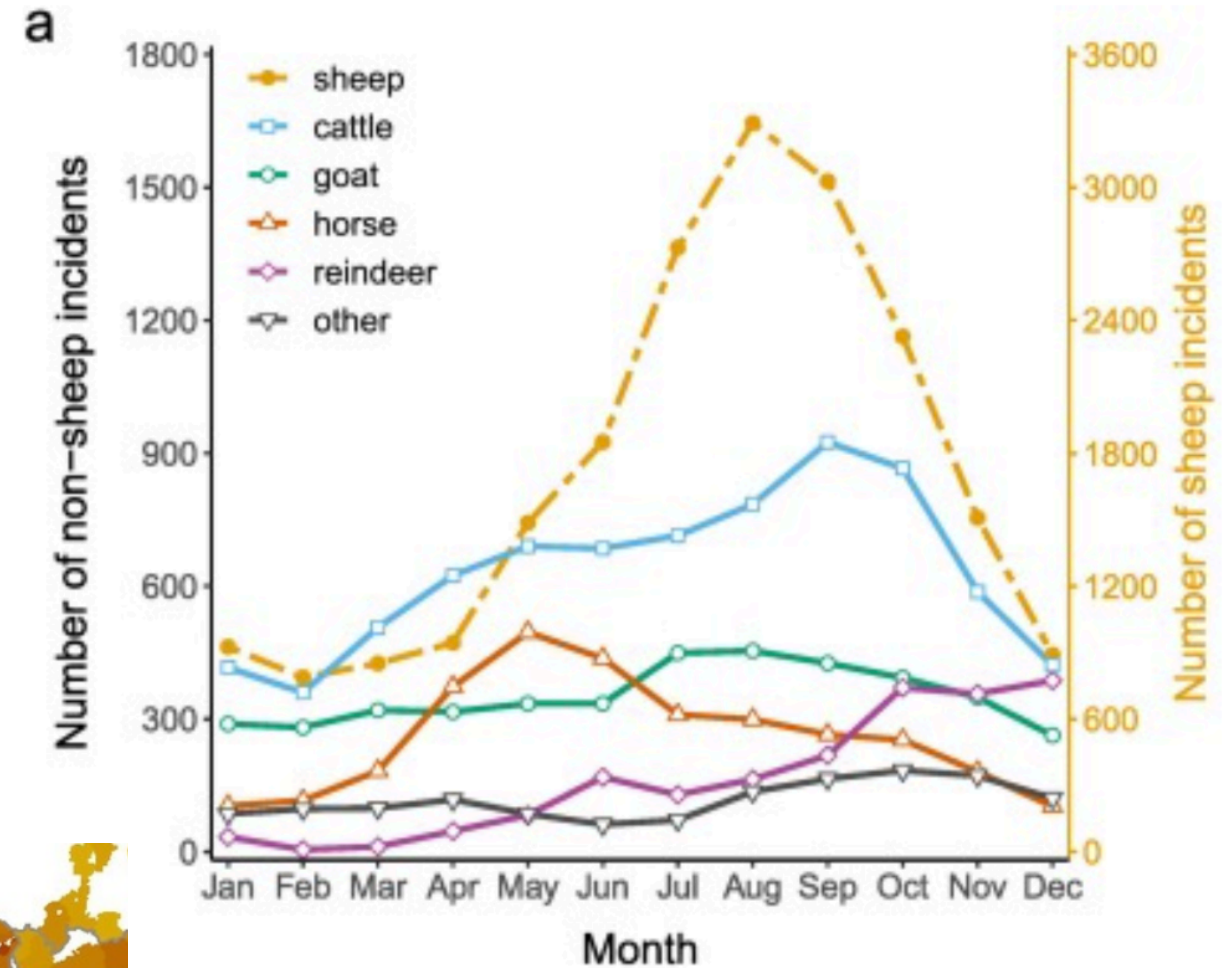
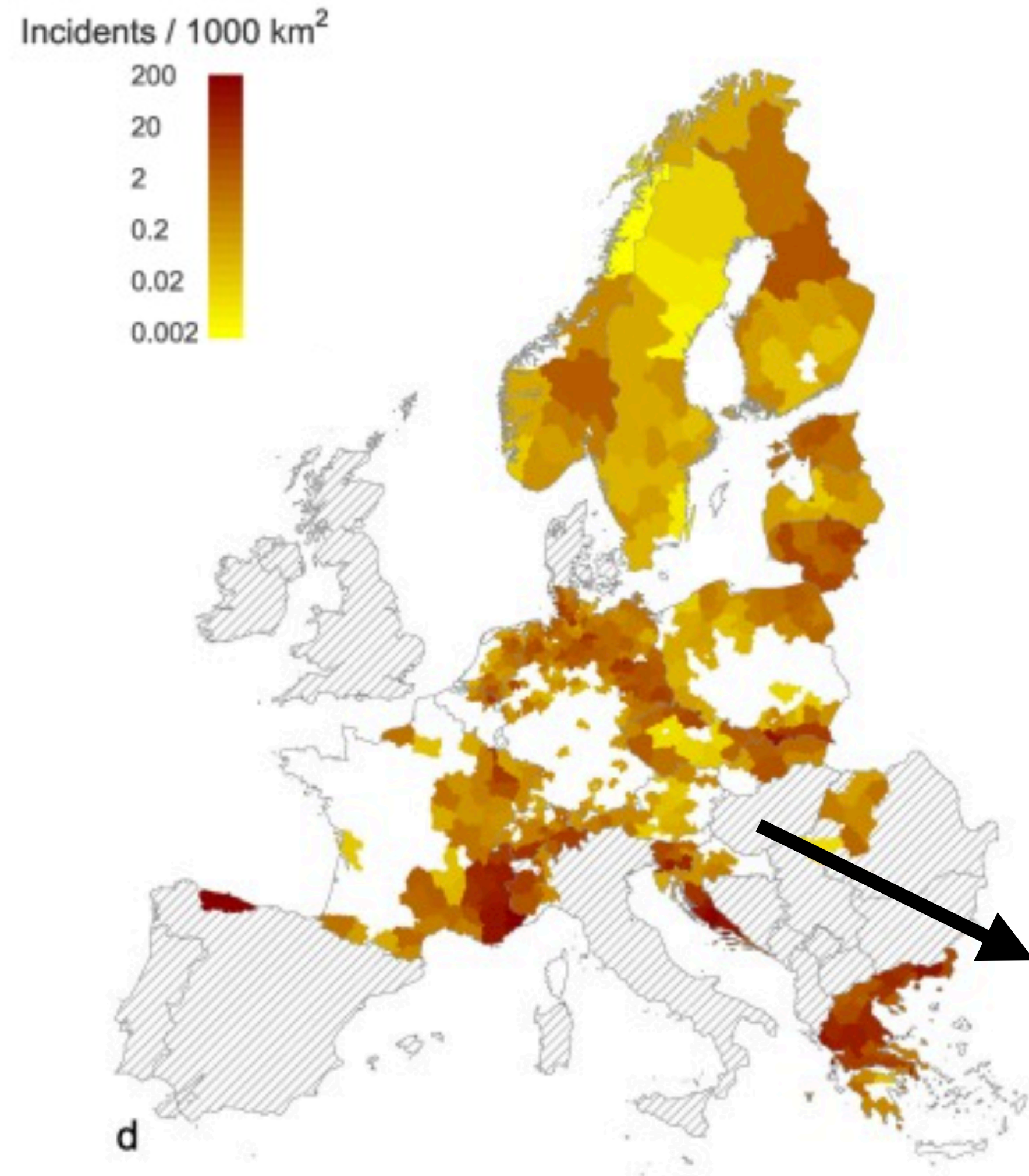
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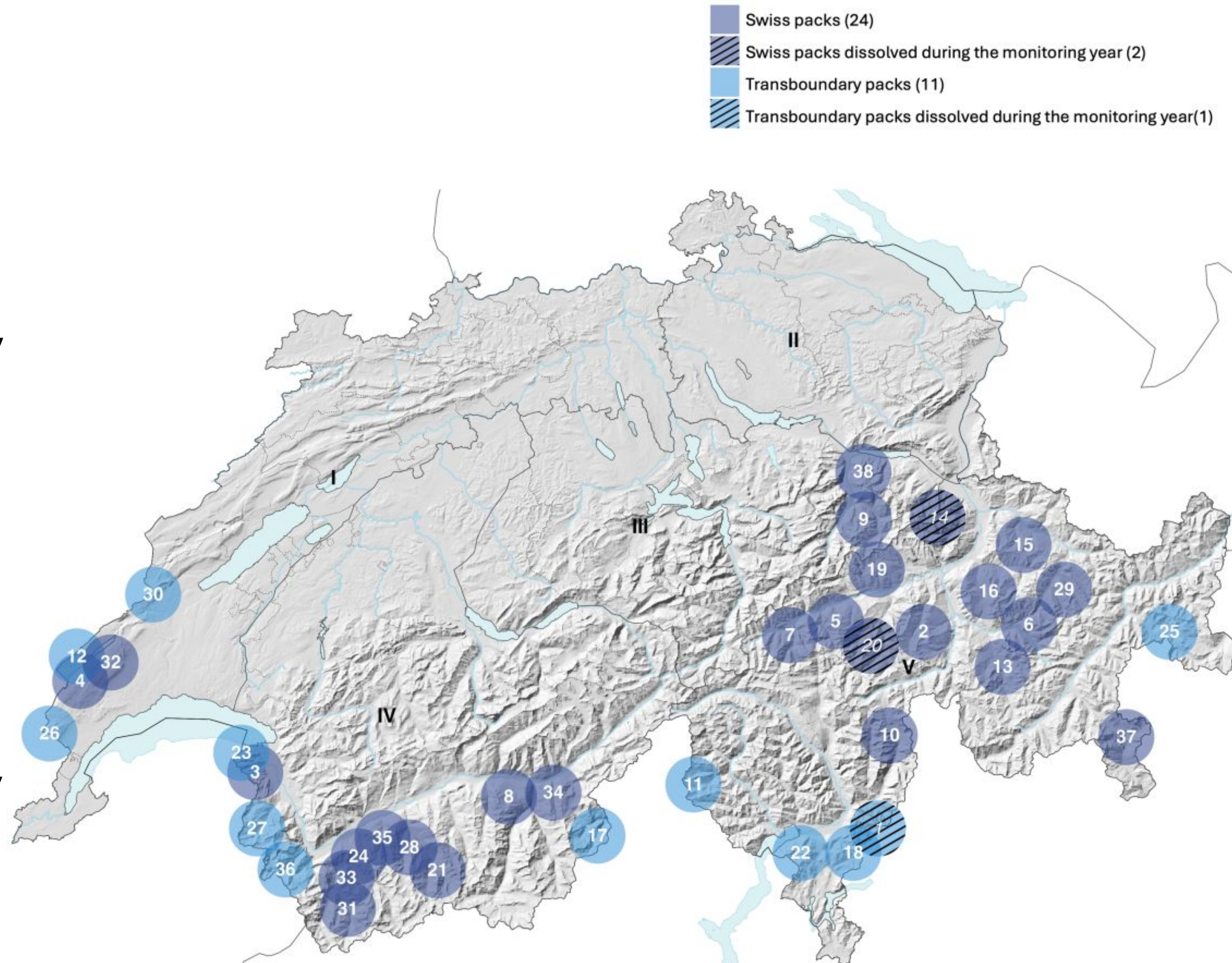
Science-based data



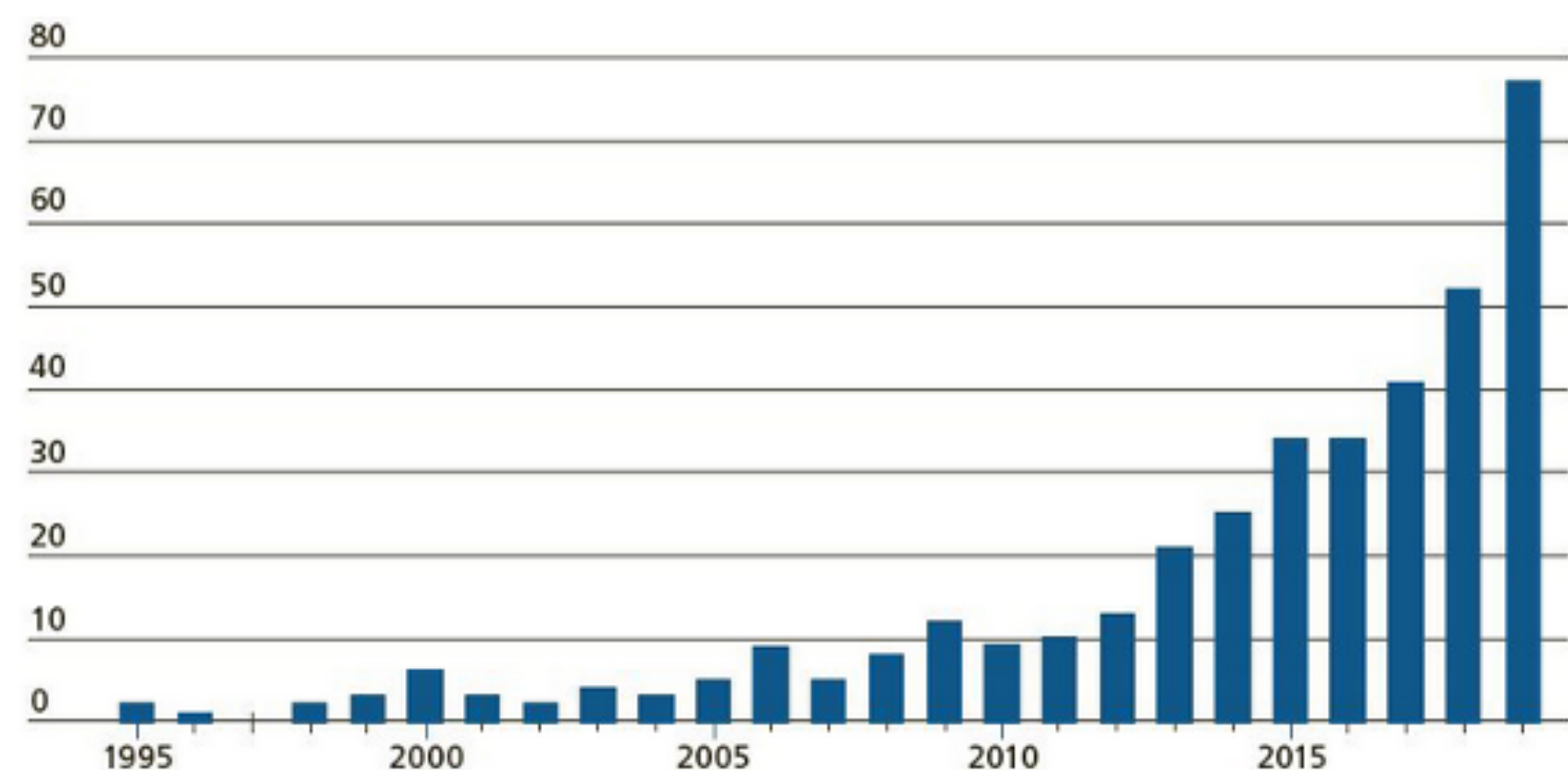
Years: 2018-2019-2020

Switzerland

- From less than 100 in 2019 to more than 300 now, spread over 32 packs. Initially naturally spread from Italy.
- Law: 1979 Bern Convention on the Conservation of European Wildlife and Natural Habitats legally protects the wolf (with exceptions).



Évolution de la population de loups en Suisse:



 Nombre de loups observés

Depuis 1995, les loups sont de retour en Suisse.

Source: fondation KORA, Écologie des carnivores et gestion de la faune sauvage



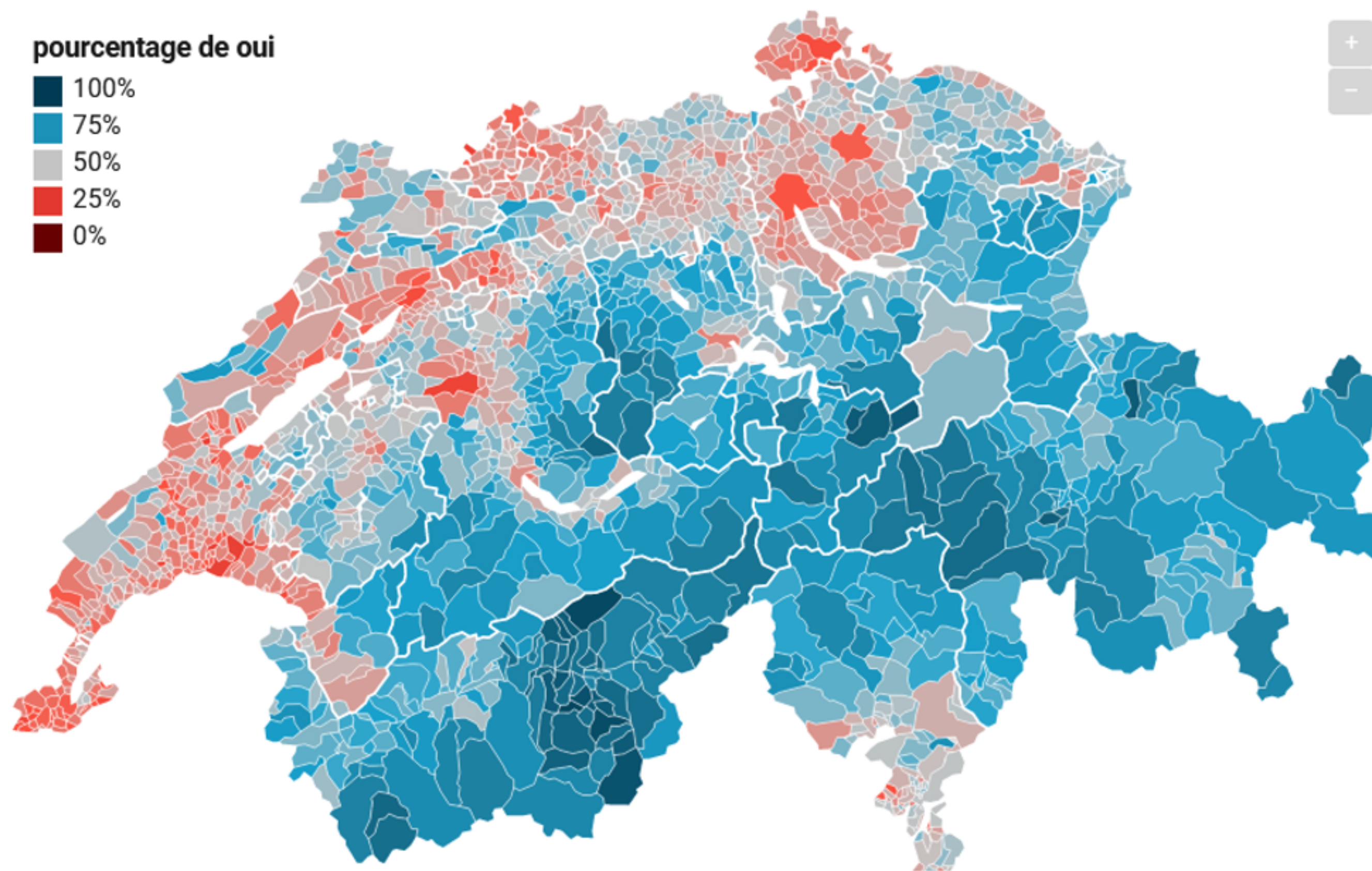
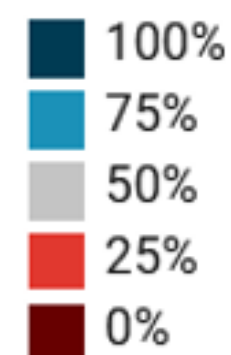
L'ours brun fait une nouvelle fois une brève apparition en Suisse

29/08/2022

Mort d'un gypaète barbu après une collision avec un hélicoptère en Valais

02/10/2023

pourcentage de oui



September 27th 2020

Modification of the hunting law in CH
Refused by 51,9 % of voting people

Switzerland

- **Ecologists:** wolves should be allowed to prosper (sentimental and herbivore control). Sufficient wolf-friendly territory to support between 50 and 100 packs (Source: KORA)
- **Politicians:** Preventive culling only if they represent a threat
- **Farmers:** “Wolves present a problem, especially as there are lots of sheep which graze without shepherds”. “It’s a terrible thing to lose one’s sheep, not just from a financial point of view, but emotional as well”.



What would you do?

- Assigned group: Present your reasoned decision to stakeholders (15 minutes) in how to manage the wolf in Switzerland. (Eradication, control, nothing...?)
- Rest of the class (playing as stakeholders): Are your interests satisfied in the decision?