Case #5
How should we manage the wolf?

Helena Vallicrosa - Applied Ecology (11/11/2025)

1. Context of the case study


The red riding hood


The Teelets
The Three Little Pigs

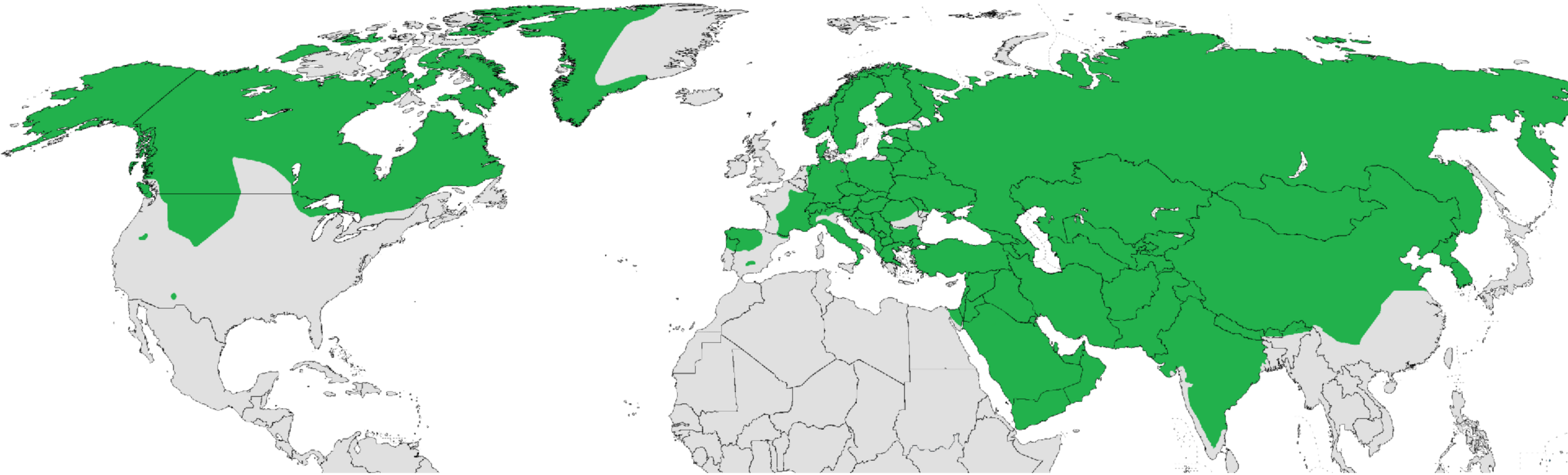

The beauty and the beast


“Wolf in sheep’s clothing” - Popular

Historical fatalities

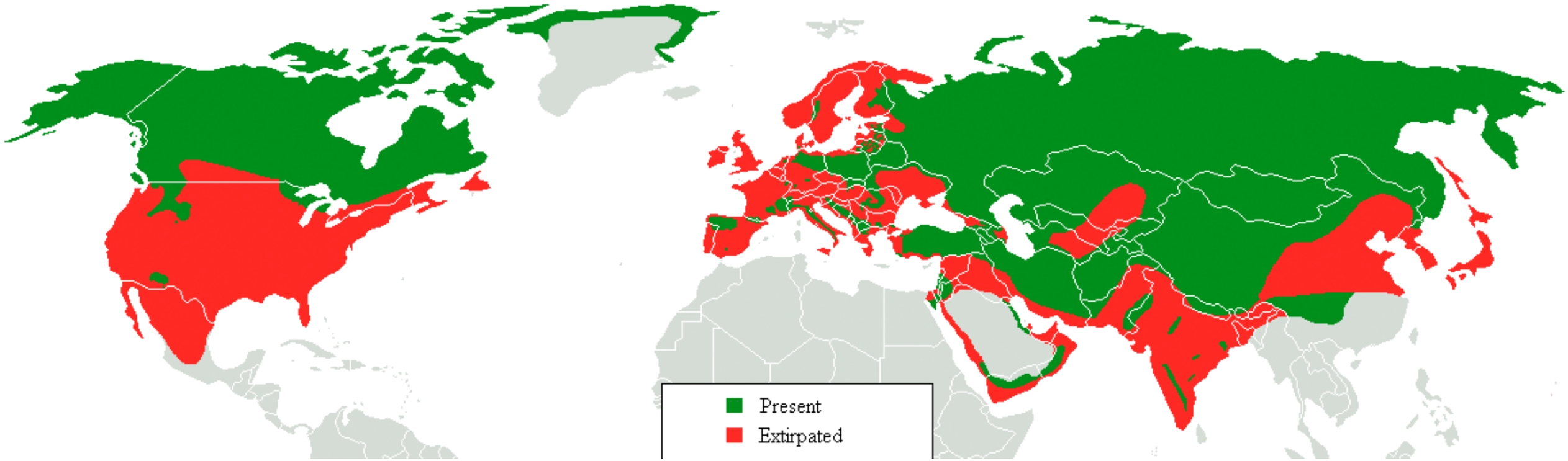
- France: **10’000 deaths** (between 1200 - 1920), 35% attributed to rabies. Maybe misattributed from other beasts?
- Himalaya: **7’600 deaths** (between 1362 - 1918). 40% attributed to rabies.
- Evidence of wolf-human conflict in North-America but no historical records.

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

Canis lupus



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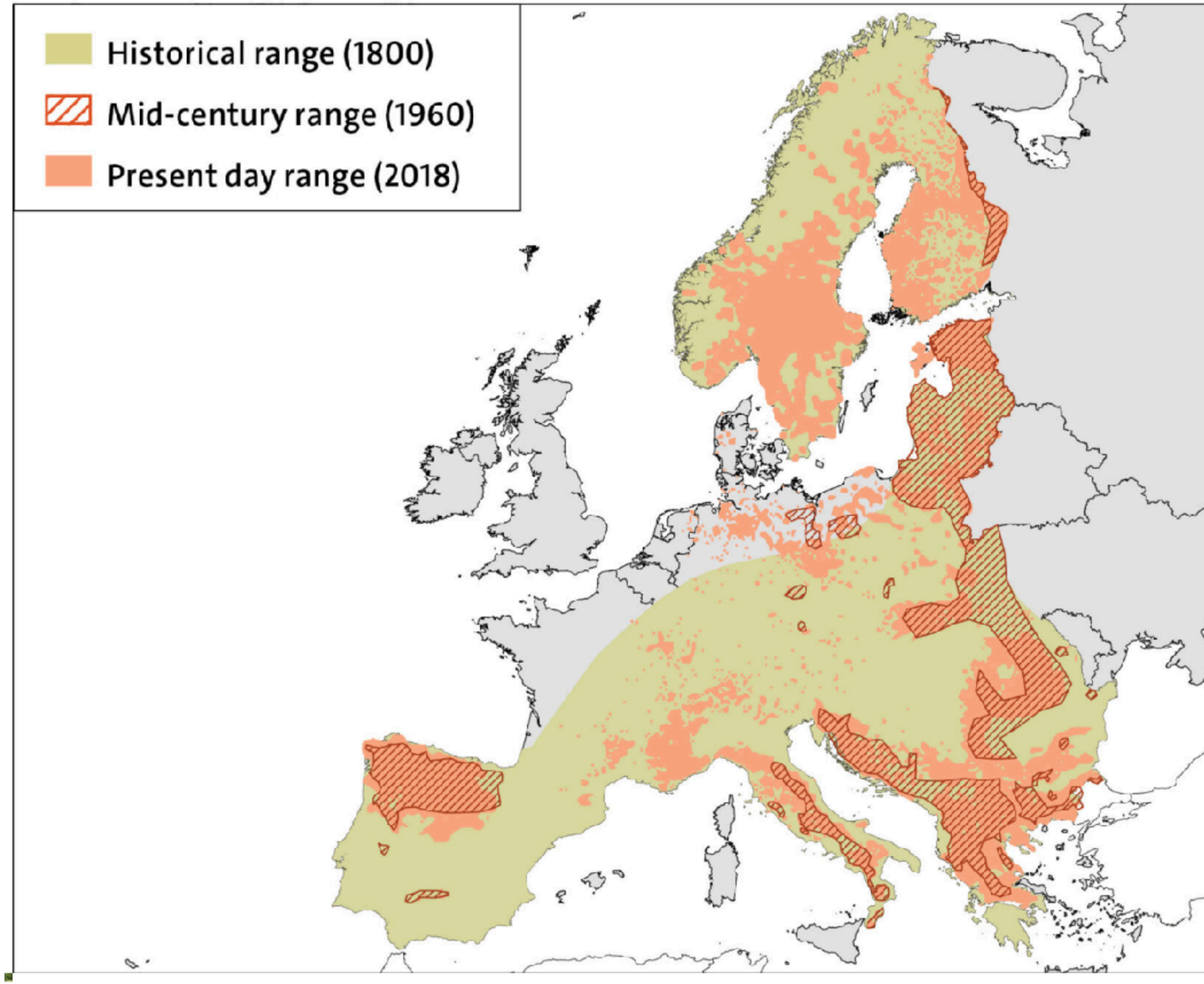
Increase since 1960-1970s

- Historical socio-economic changes
- Legal protection of the *Canis Lupus*
- Increase of the public acceptance



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

Again, conflicts arise!

- **25% range expansion in Europe** on the decade (21’500 individuals in 2022 vs 17'000 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.

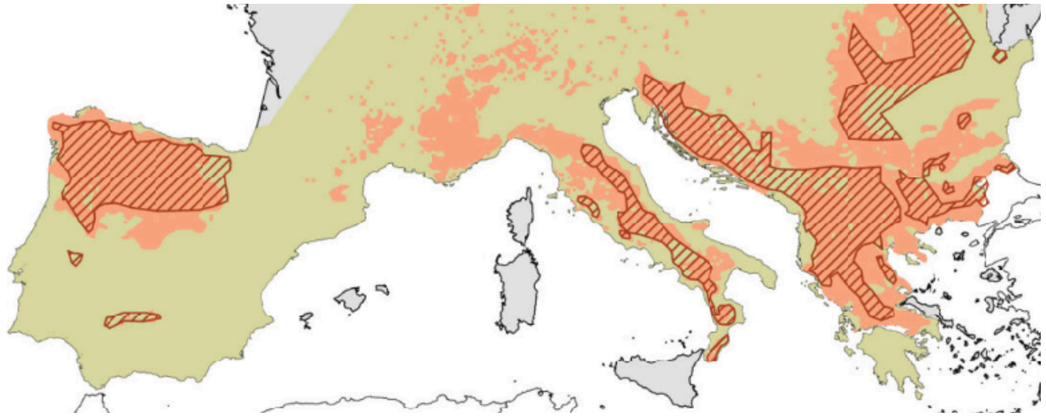
At stake is whether the wolf's protection status should be **reduced from "strictly protected" to "protected,"** allowing the animals to be killed more easily if they threaten livestock.

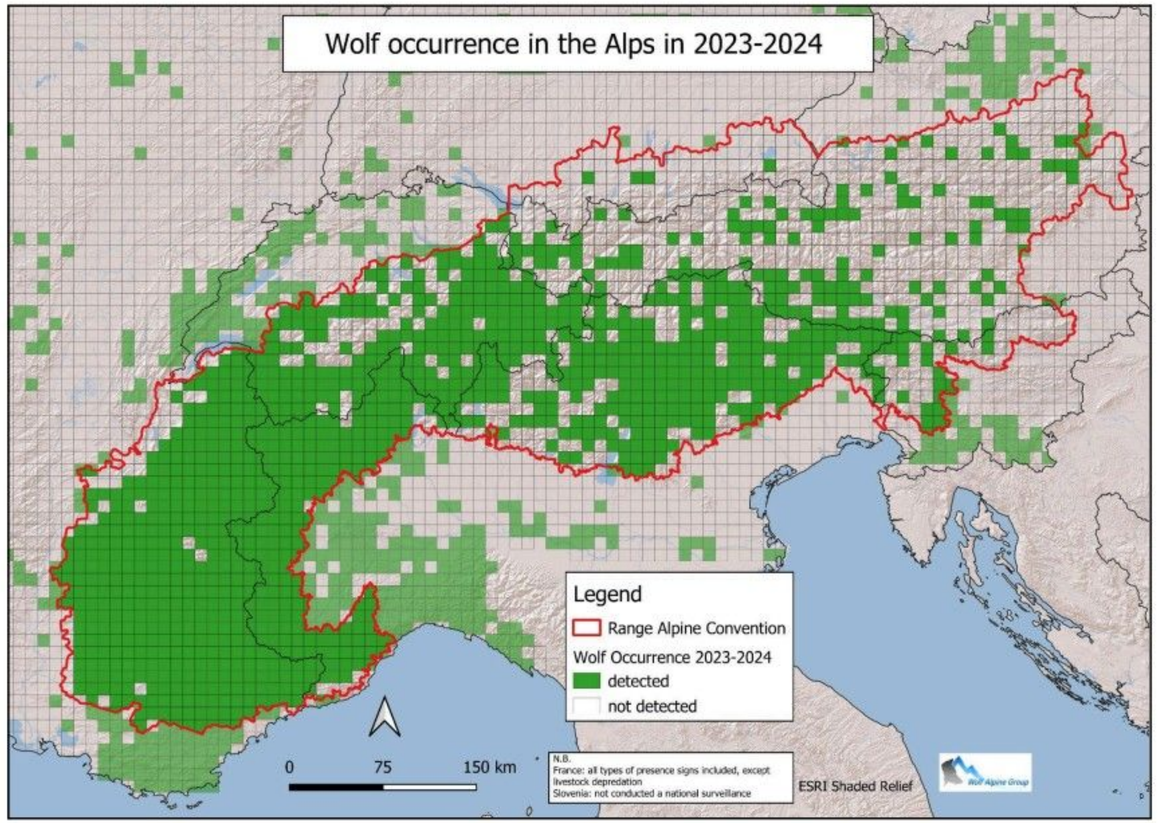
According to the Commission’s own estimates, there are about 20,000 wolves in Europe and **<u>0.06 percent</u> of farmers’ sheep fall victim to them every year**.

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

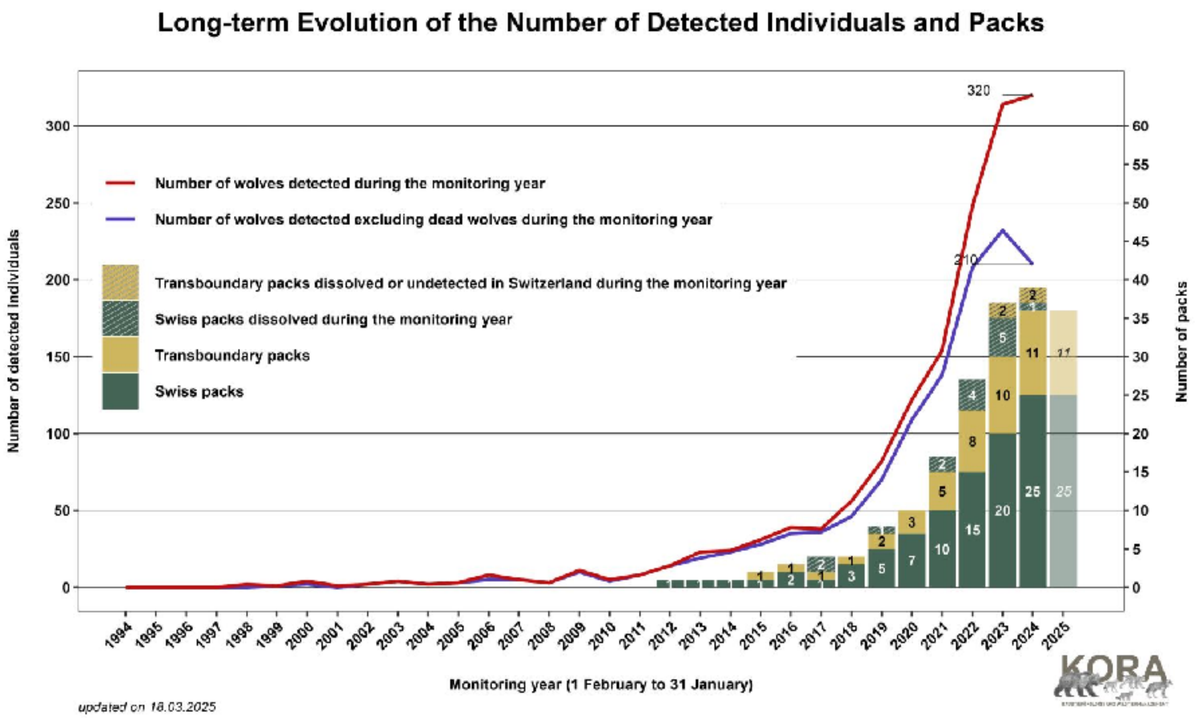
What’s up in Switzerland?

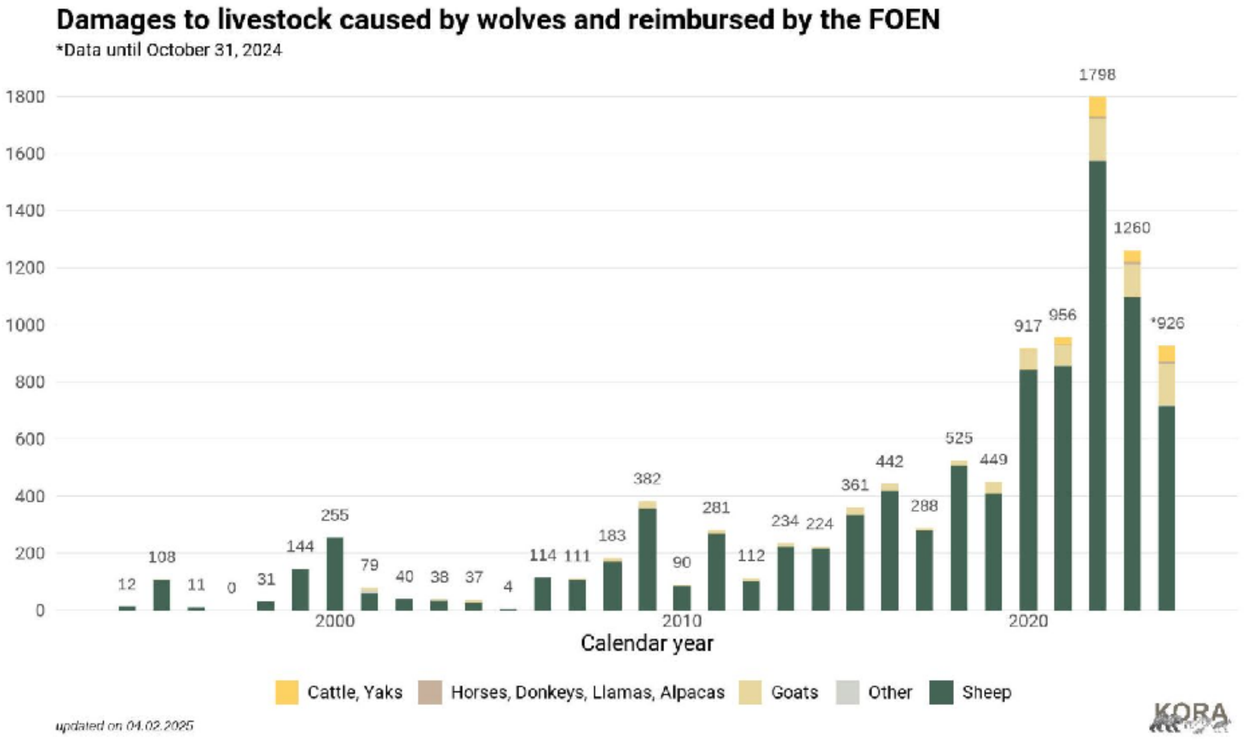
- Late 19th century, eradicated (less ungulates, more attacks on livestock, more wolf hunting)
- Mid 20th century, migration from Italy to northern latitudes.
- 1995, first wolf migration
- 2012, first pack in Switzerland





More wolfs, more conflict

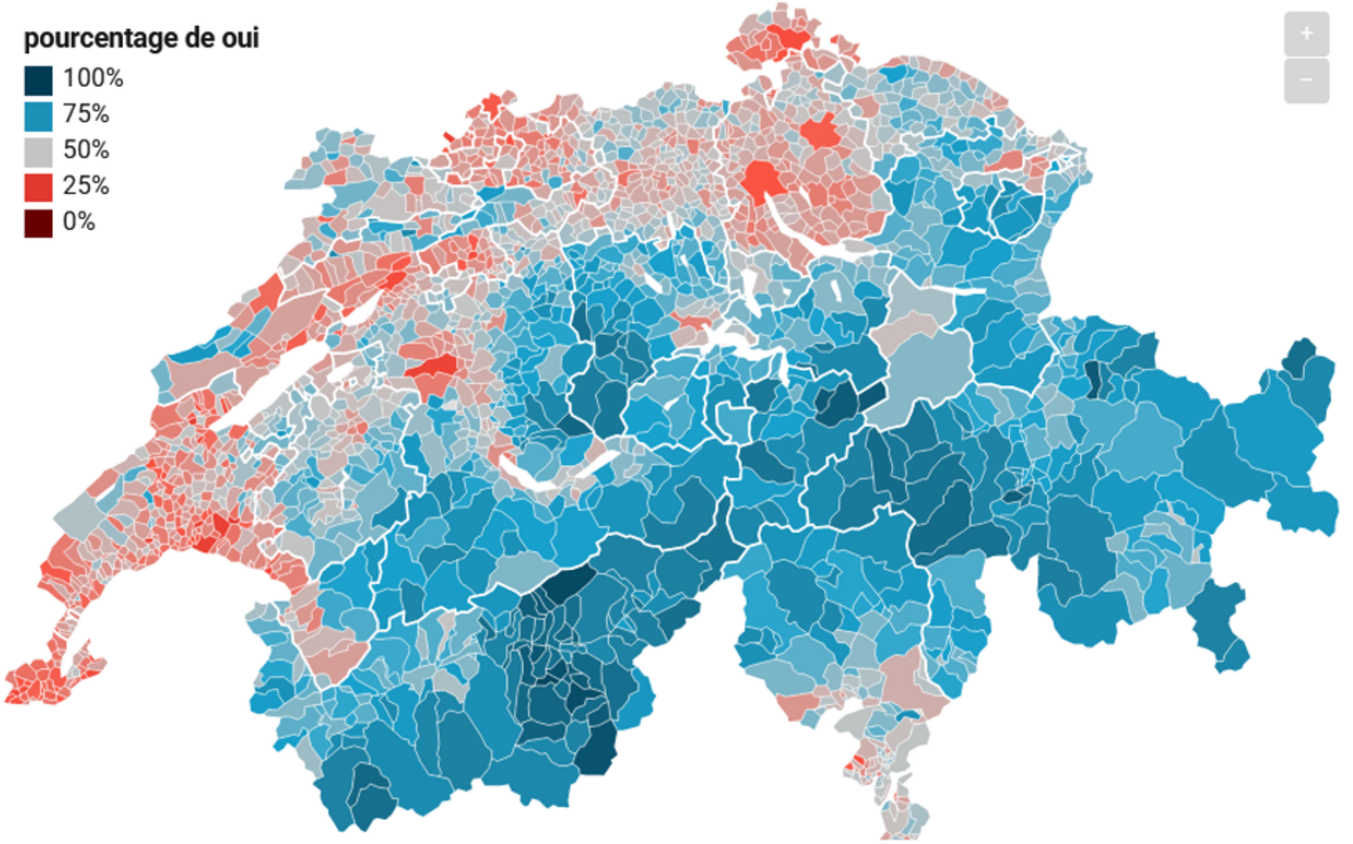




- Livestock's predation is the most common tension.
- Sheep are the livestock species depredated most often.
- Last human death by wolf attack: Spain, 1975.

Current regulation in Switzerland

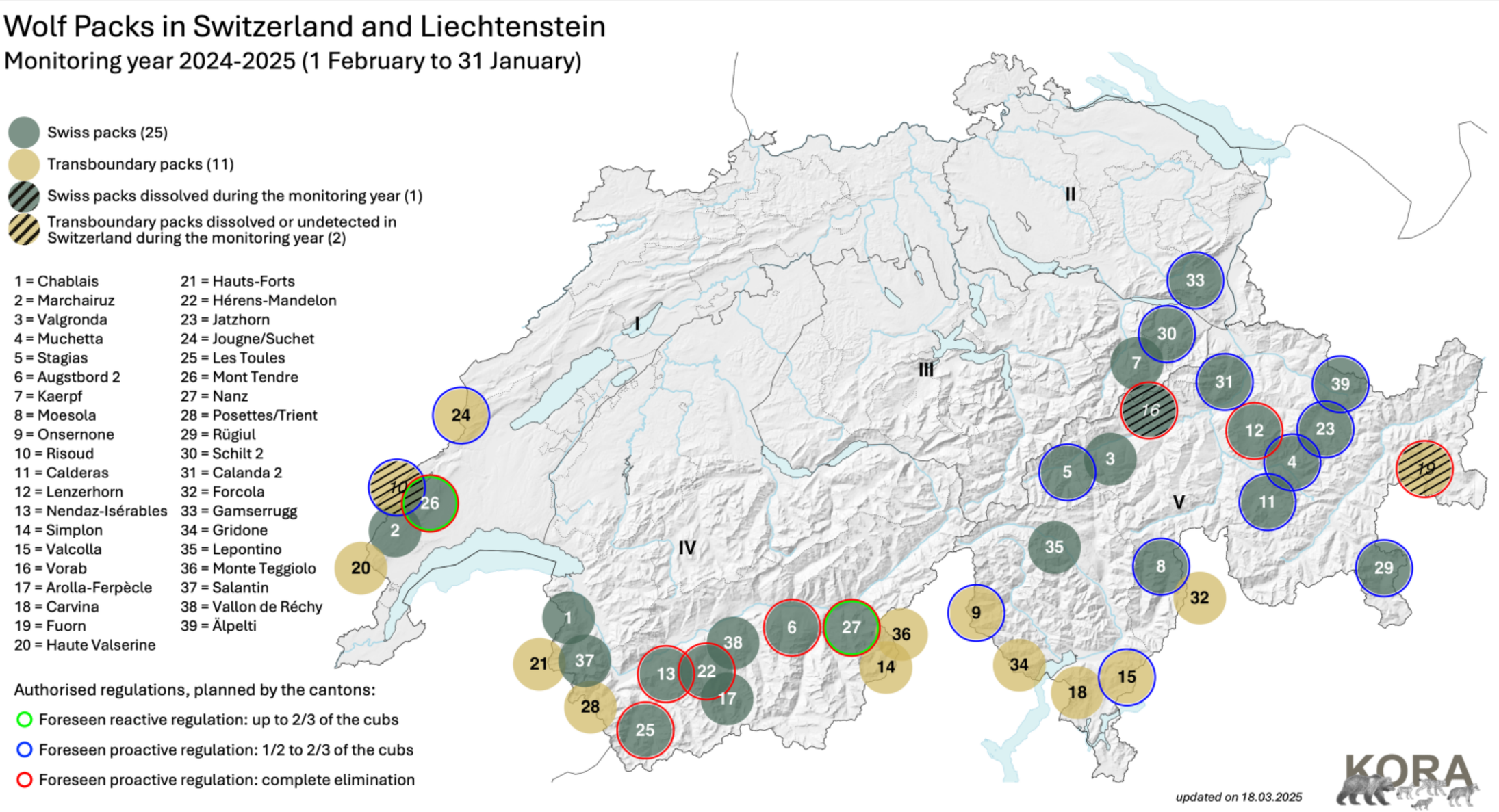
- Swiss hunting law (Jagdgesetz, JSG, SR 922.0) (DE, FR, IT): protected
- Swiss hunting ordinance (Jagdverordnung, JSV, SR 922.01) (DE, FR, IT): regulates the exceptions
- Bern Convention: Appendix III (protected animal species)
- EU Habitats Directive: Annex IV (strict protection)
- CITES: Appendix II
- Conservation status CH: Vulnerable (DE, FR)



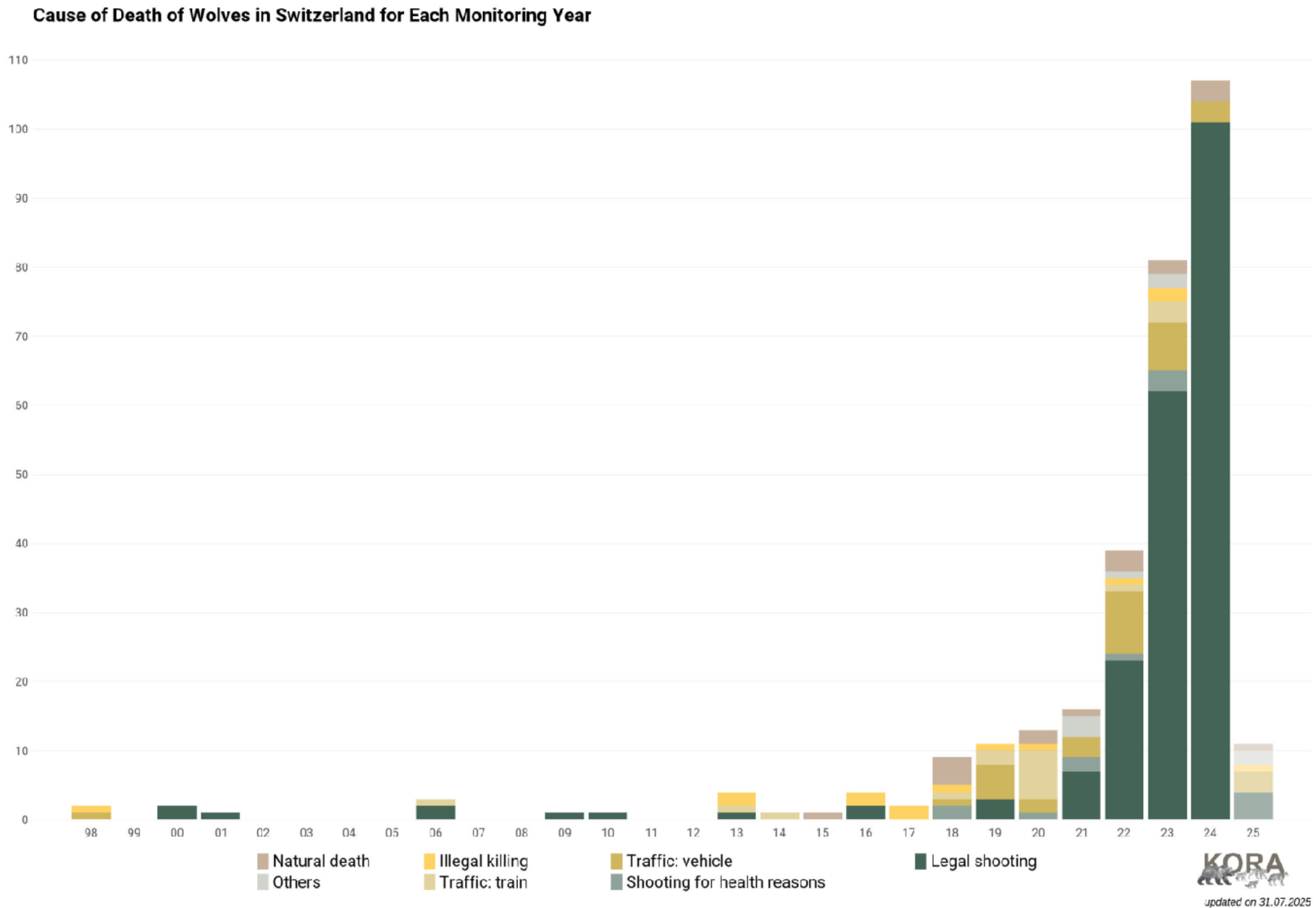
September 27th 2020

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

Current pack status



Major cause for wolf losses in CH



Hunting regulations

- March 7, 2025: From “strictly protected” to “protected” (Bern convention).
- Proactive shooting is illegal.
- No hobby hunting of the wild. Only shot by wardens, only on instruction (with permission).
- Exceptions: repeated attacks on livestock or if an animal becomes a danger to humans.
- Switzerland has allowed preventive shooting since December 2023

https://wildbeimwild.com/en/illegal-wolf-hunting-in-switzerland/

2. Key ecological concepts at play

Who is the grey wolf (*Canis lupus*)?

HABITAT

Forest, Shrubland, Grassland, Artificial/ Terrestrial[1]

RED LIST STATUS

Global: Least concern (2018)[2]

Europe: Least concern (2018)[1]

RED LIST POPULATION TREND

Global: Stable (2018)[2]

Europe: Increasing (2018)[1]

POPULATION SIZE

Global: c. 300,000–400,000 (2022)[3]

Europe: at least 17,000 (2018)*[1]

CHANGES IN RELATIVE ABUNDANCE (LPI)

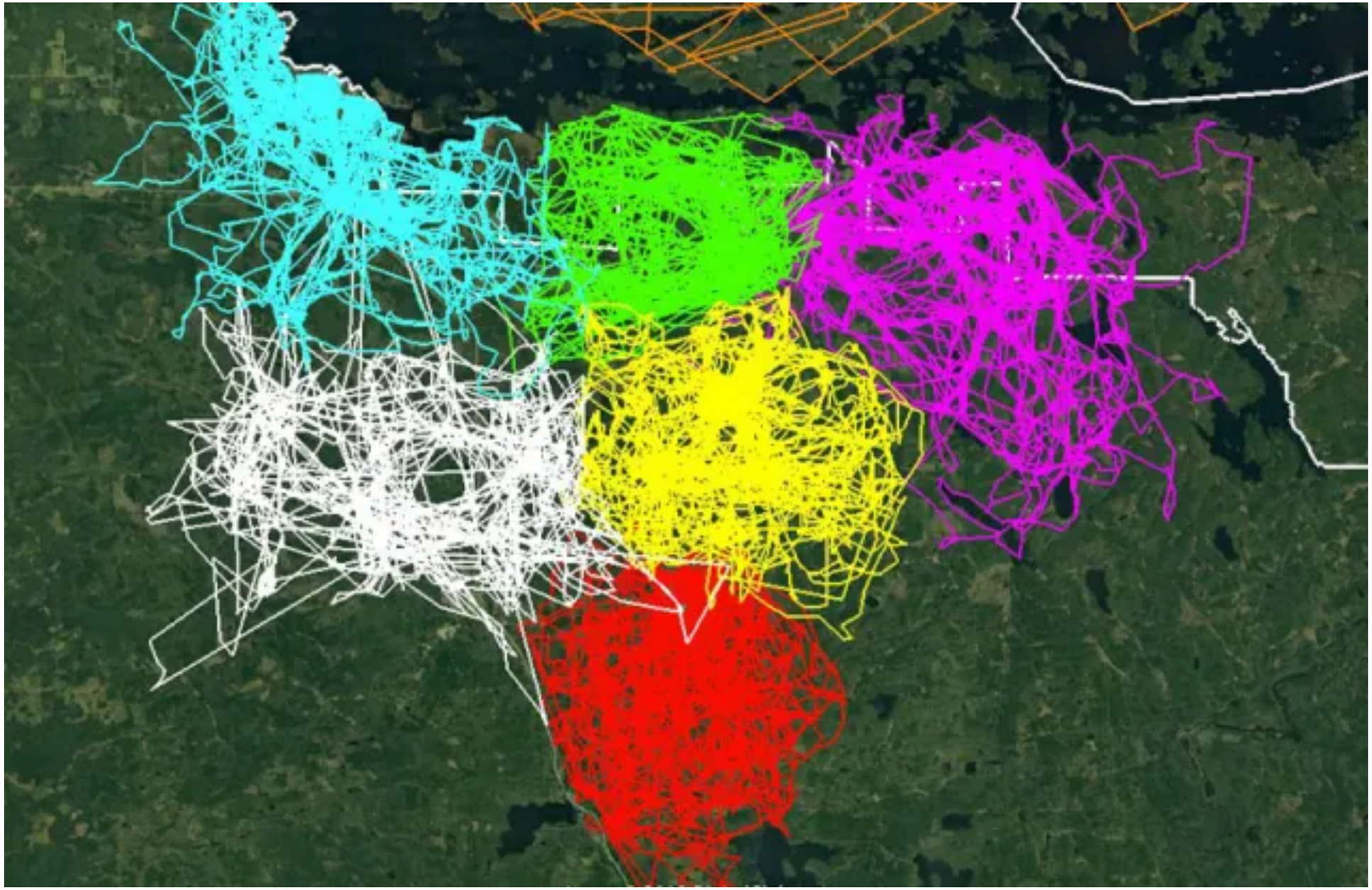
Increasing, +1,871% (1965–2016)[4]

CHANGES IN DISTRIBUTION

Increasing (1960–2018)**[1,3]

- The largest wild canid (30-80 kg male / 23-55 kg female).
- Life expectancy in the wild: 6-8 years.
- Distributed across the northern hemisphere
- Social, living in packs (2-30 ind, normally 6-8) with territories between 100-500 km2 and territorial
- Reproduction once a year, 3-9 pups. Sexually mature 22 months.

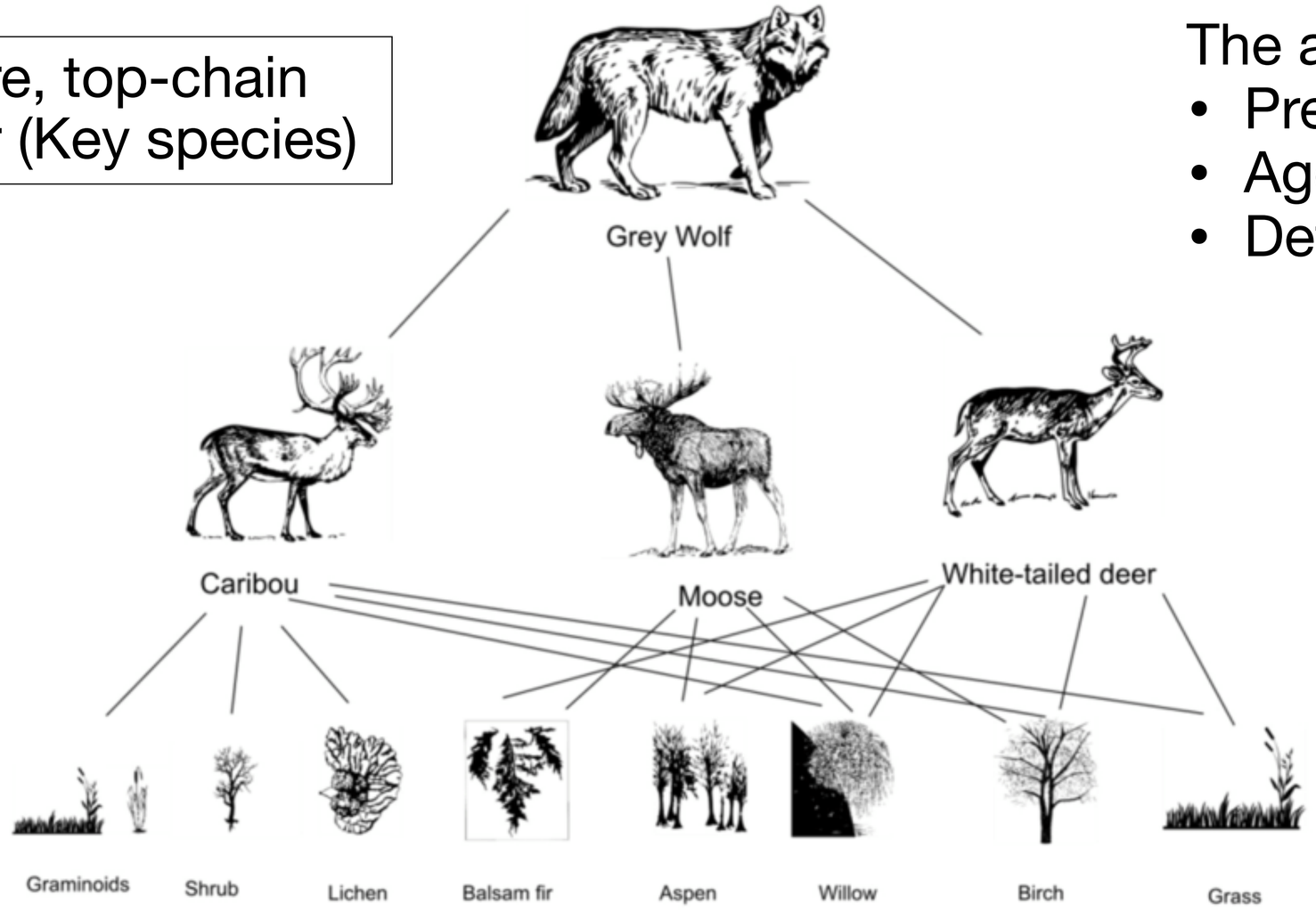
Who is the grey wolf *(Canis lupus)*?



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

Who is the grey wolf *(Canis lupus)*?

Carnivore, top-chain predator (Key species)



The attacks can be:

- Predatory
- Agonistic
- Defensive

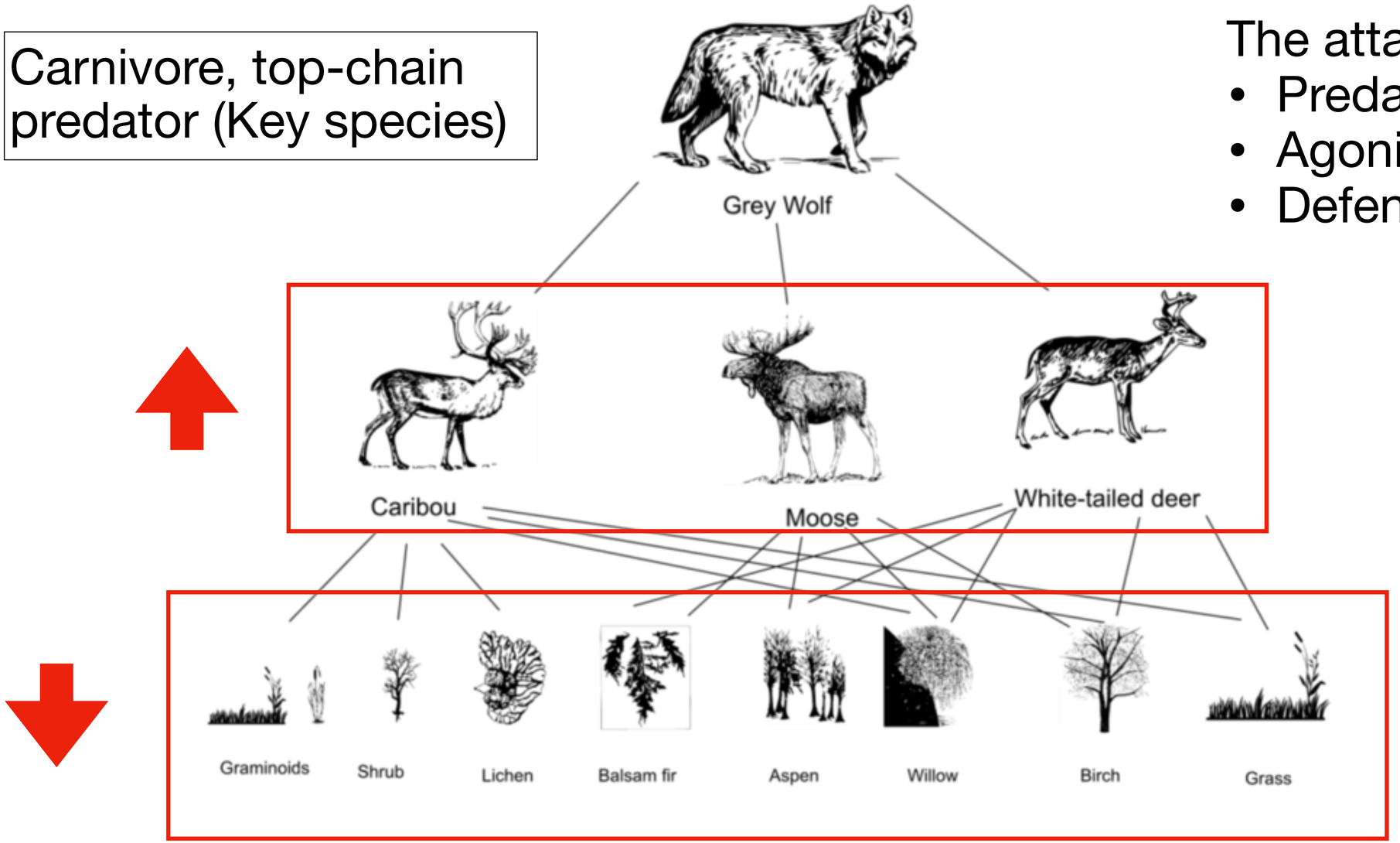
Predatory kills

- Hunting in packs
- Opportunistic: From mice to horses. However, it prefers medium to large sized wild ungulate species. Young, old or sick animals.
- Smaller family groups feed for several days on a kill.
- Difficult to distinguish attacks between wolves and dogs.
- Avoid humans.

3. Broader consequences

Trophic cascades

Carnivore, top-chain predator (Key species)



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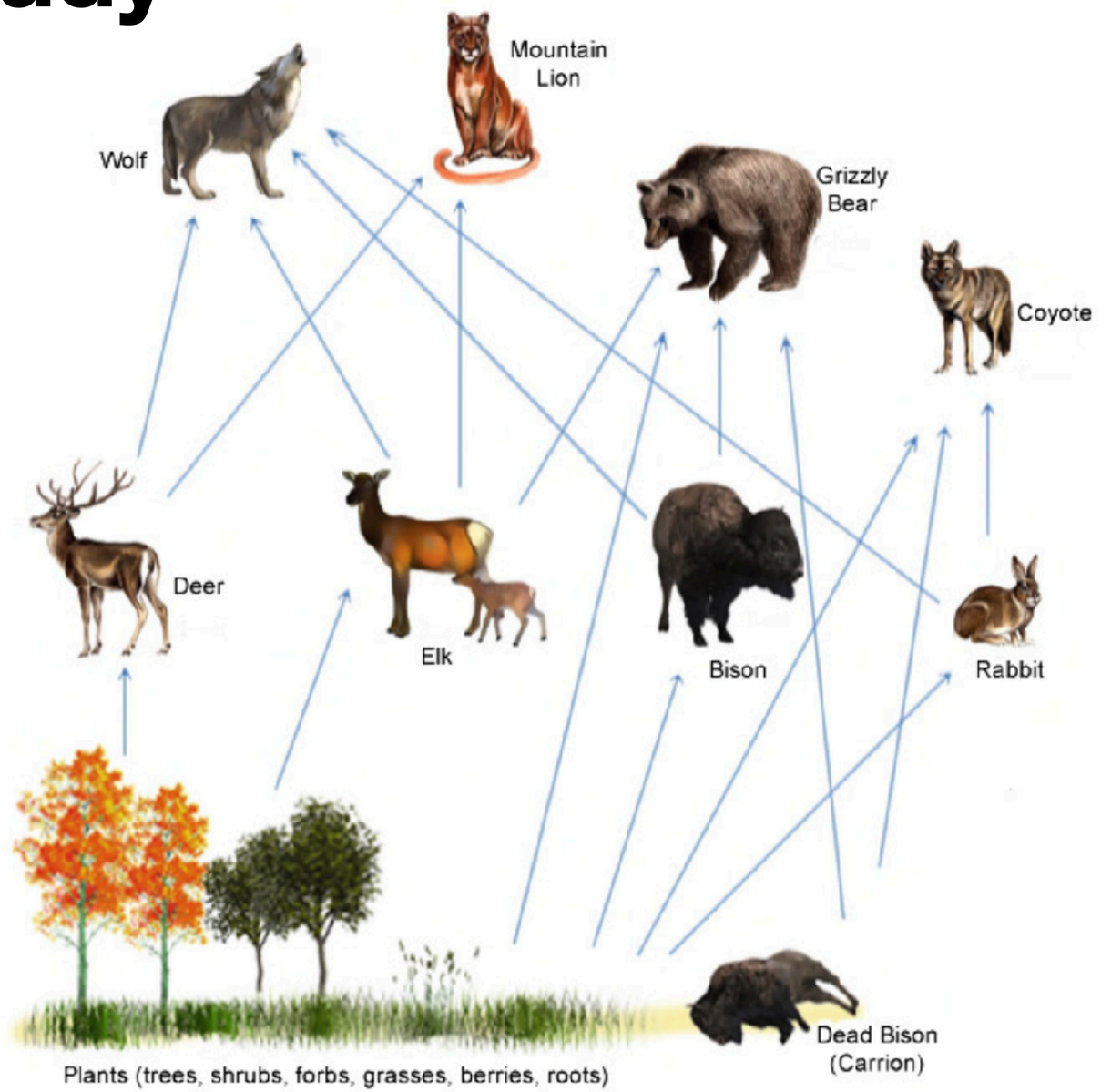
HOW WOLVES CHANGE RIVERS

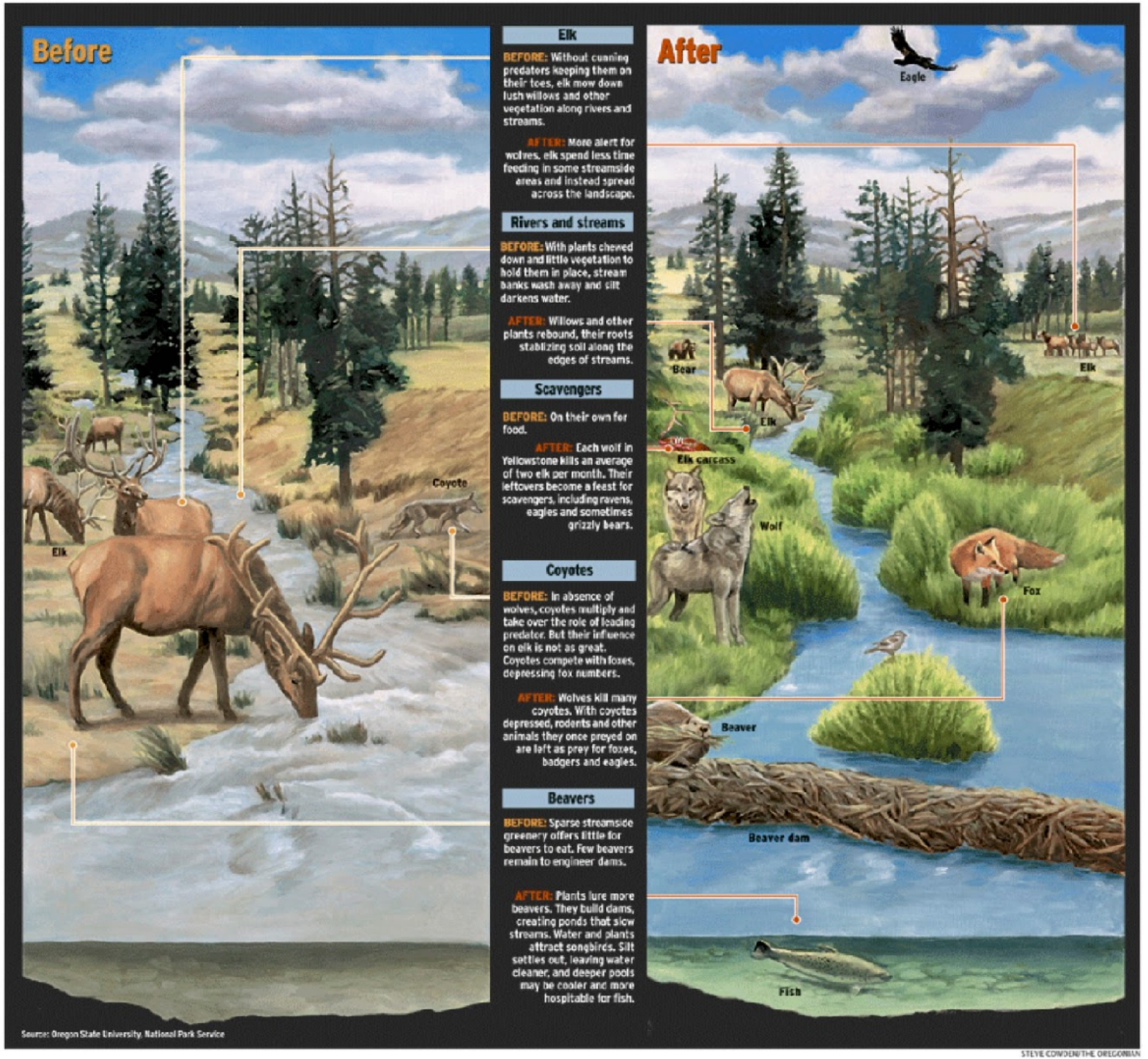
Yellowstone - Case study

- 1926: Yellowstone wolf population was eradicated
- Herbivores stoped 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



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.



Elk

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.

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.

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.

Coyotes

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.

Beavers

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.

Source: Oregon State University, National Park Service

STEVE COWEN/THE OREGONIAN

Controversy in the US north west

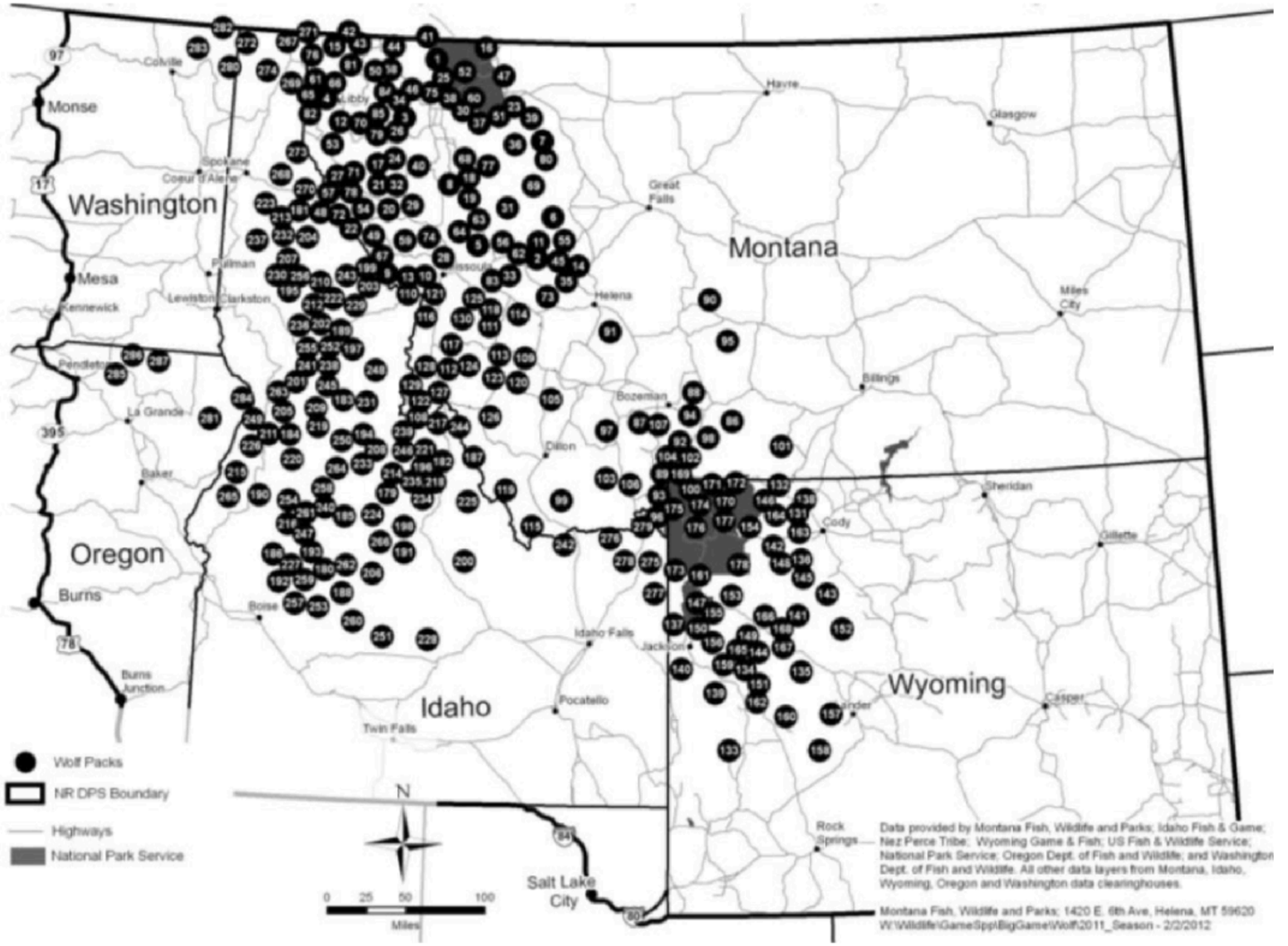
- Should humans interact with the “natural flow” of nature? (1964 Wilderness Act)
- Conflict with human hunters
- Wolves killing and stressing livestock (Tale’s bad guy)

(Smith and Peterson , 2021)

Smith DW, Peterson RO. Intended and unintended consequences of wolf restoration to Yellowstone and Isle Royale National Parks. *Conservation Science and Practice*. 2021; 3:e413. https://doi.org/10.1111/csp2.413

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 rangers 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 Journa
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 subsides

Social and political instability

4. Potential solutions

How should we manage the wolf in CH?

- It should be fully protected. Full priority to the wolf.
- It should be regulated. Let’s get along.
- It should be eradicated from Switzerland

QuizMaker

How should we manage the wolf in CH?

- It should be fully protected. Full priority to the wolf. → Incompatibility with some human economic activities
- It should be regulated. Let's get along. → OK. But what management strategy is better?
- It should be eradicated from Switzerland → Then… how do we manage the ecosystem?

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

The goal is coexistence:

dynamic but sustainable state in which humans and wolves co-adapt to living in shared areas ensuring long-term wolf population persistence, their social legitimacy, and tolerable levels of risk to humans.

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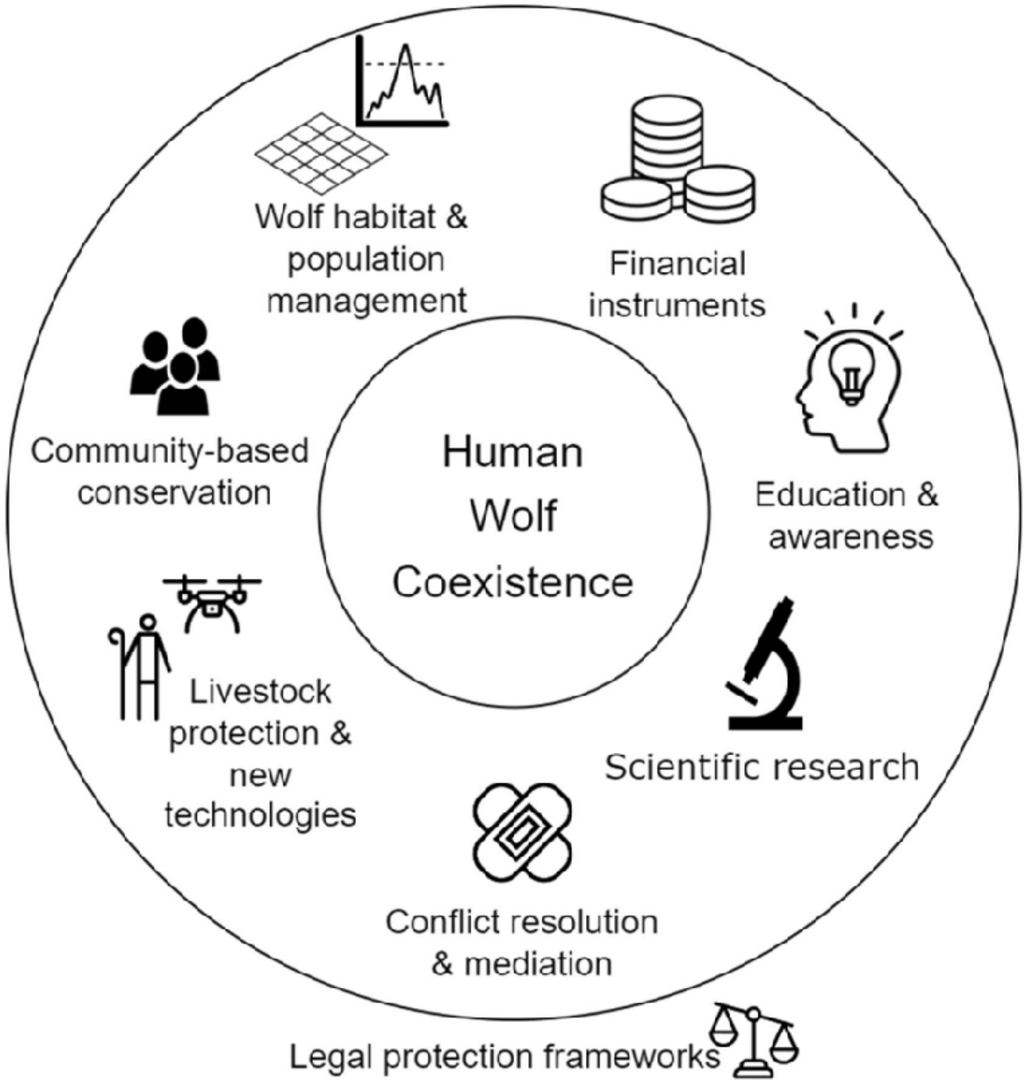
Review article

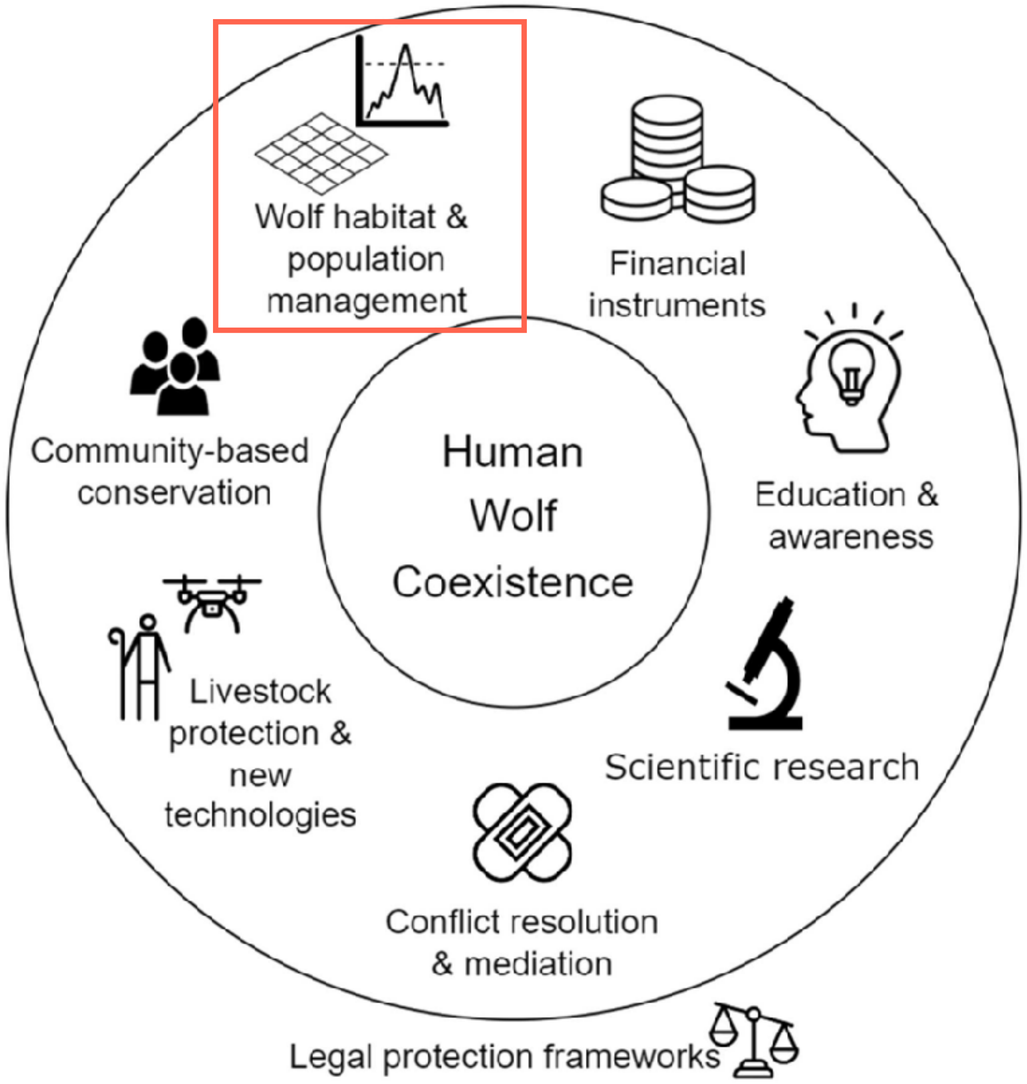
Eight strategies for human–wolf coexistence and their application to Swiss governance gaps

Maximilian Meyer

How?


Wolf habitat & population management
Financial instruments
Community-based conservation
Human Wolf Coexistence
Education & awareness
Livestock protection & new technologies
Scientific research
Conflict resolution & mediation
Legal protection frameworks

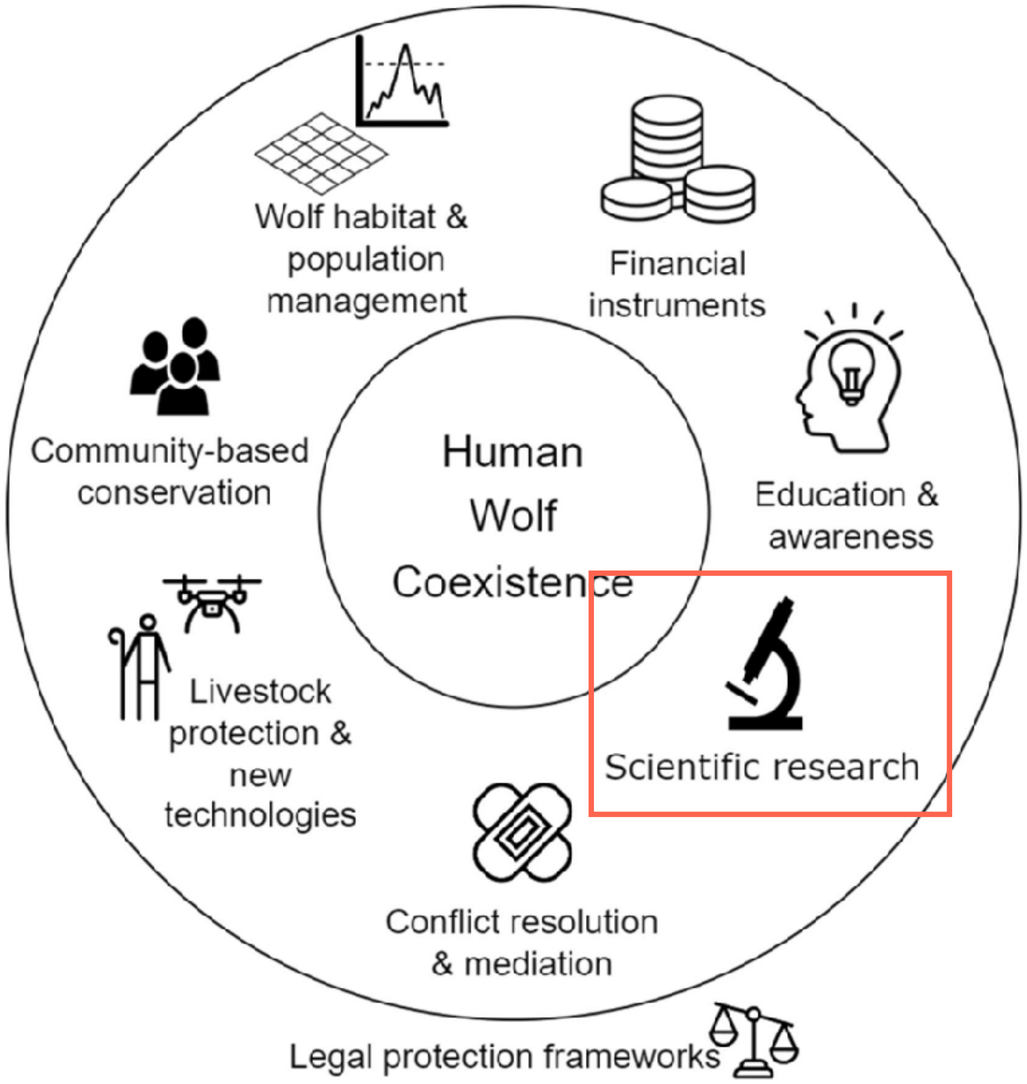
How?



Monitoring (demographics, predation) to decide whether:

- Preserving and restoring wolf natural habitats, which decreases conflict
- Pack translocation (not so effective)
- Hunting/culling: unclear effect. Needs case by case evaluation and research.
- Certify that wolves are afraid

How?



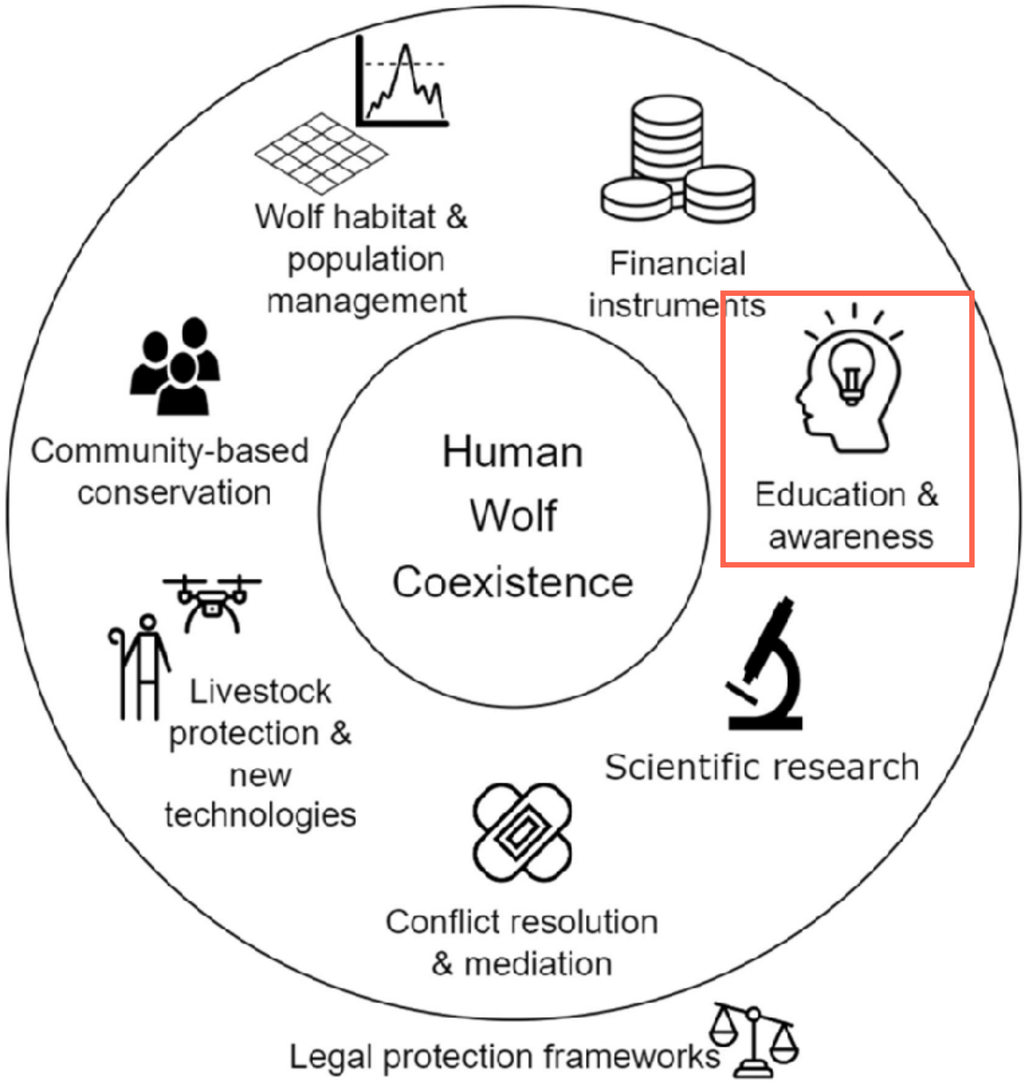
Understand wolves' local behaviour to adapt human strategies.

Determine cost-effectiveness of the measures.

Solution-oriented research towards coexistence.

Social sciences as well, to increase acceptance.

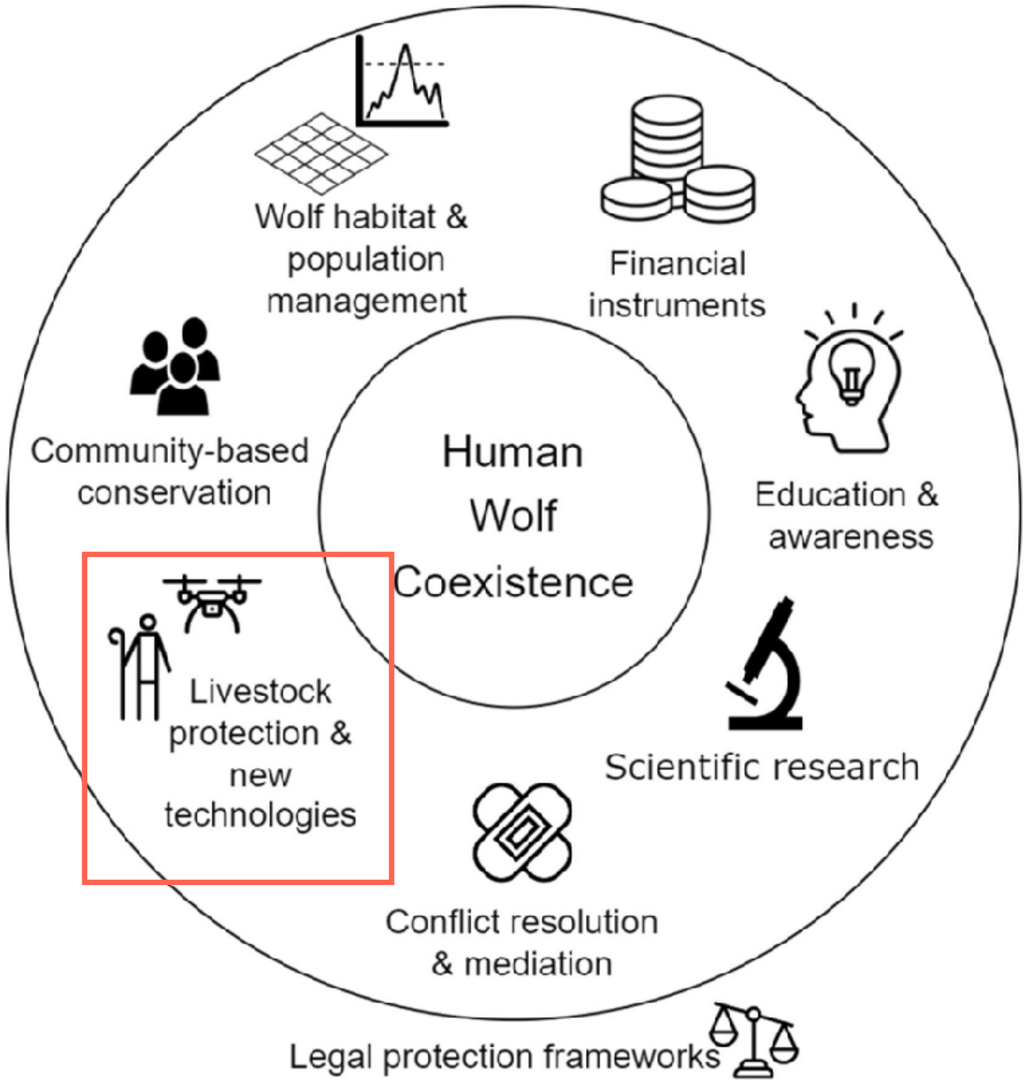
How?



Reduce human-human conflict by:

- Educate rural community of the benefits of the wolf
- Educate urban communities of the cost of the wolf managing
- Recognise needs and conflict and allow active society participation

How?



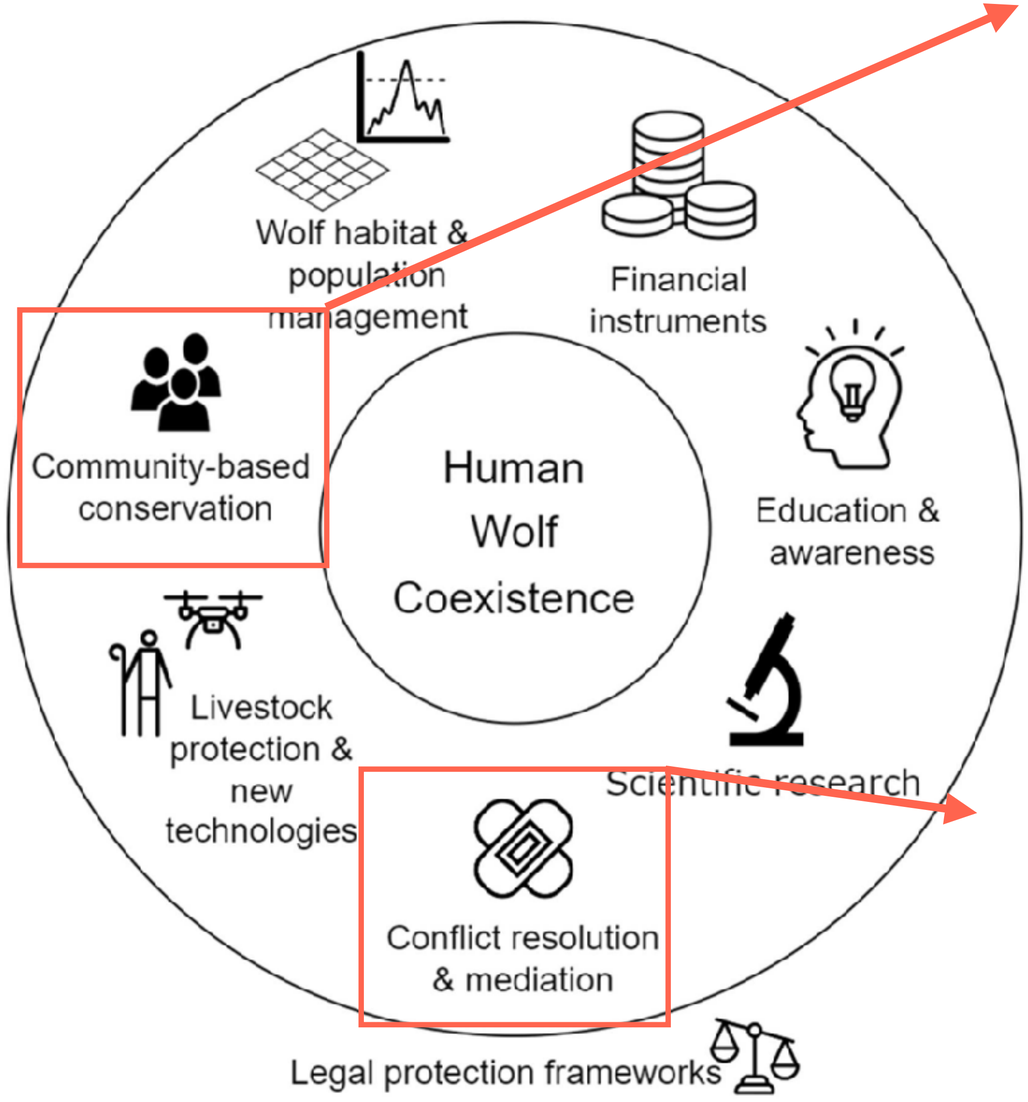
Effective common strategies (but more research needed):

- Fences
- Livestock guarding dogs
- Nighttime confinement
- Deterrence (human presence, radio…)

New proposed measures:

- Virtual fences (for early warnings)
- Drones
- Apps with incident and GPS tracking

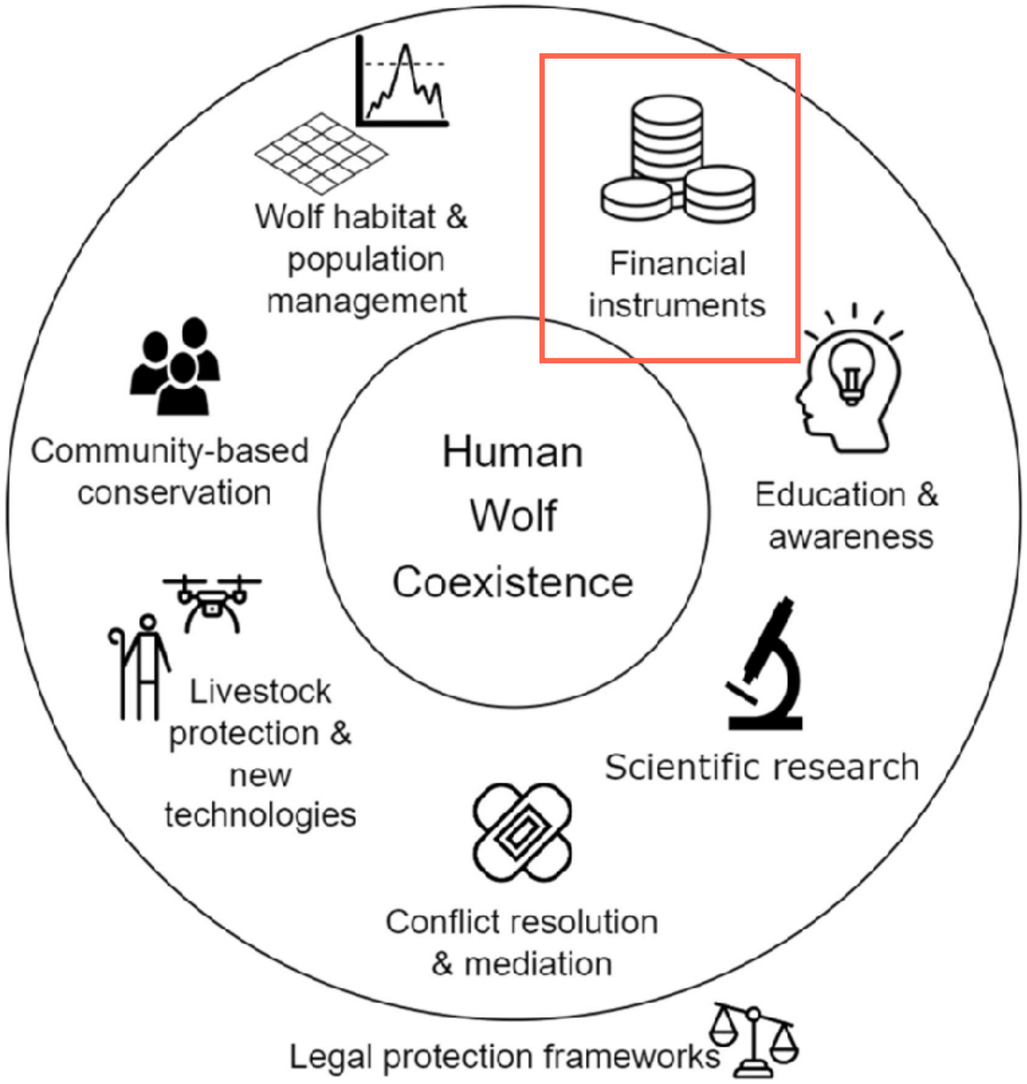
How?



Decentralised governance towards local-community power: Involving local residents in areas of wolf presence in the decision-making processes and conservation efforts empowers them to contribute to solutions

Dialog between farmers and wildlife managers can foster coexistence and shared solutions

How?



Help farmers to alleviate economic burdens of the wolf:

- Compensation and insurance (with timely and adequate payments)
- Benefit sharing (ecotourism, trophy hunting…)
- Conservation performance payments (when a goal is achieved). Too neoliberal?


Questions?