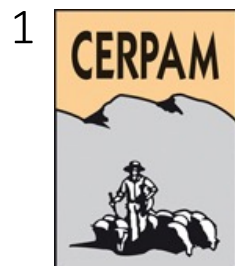


# Failure to prevent wolf damage to livestock in France: which solution pathway?

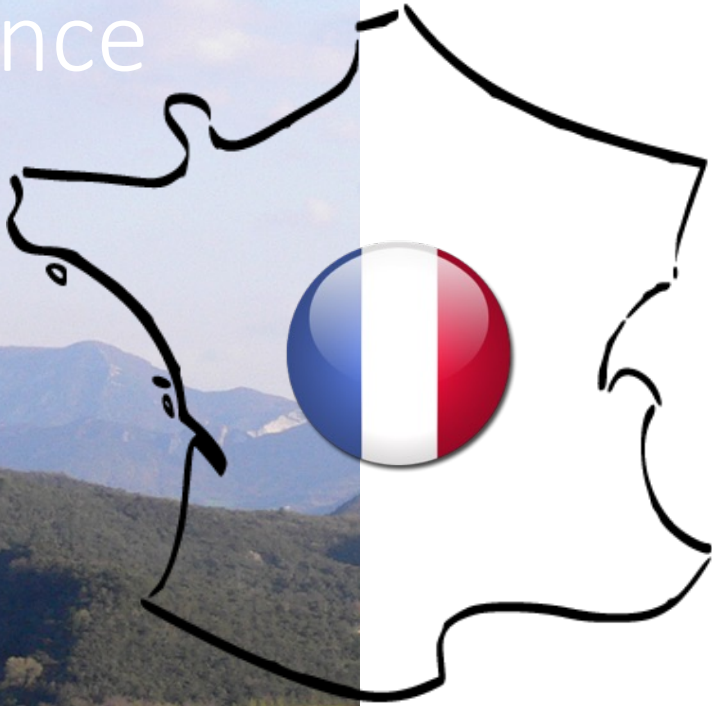
Olivier Bonnet<sup>1</sup>

L. Garde<sup>1</sup>, C-H. Moulin<sup>2</sup>, M-O. Nozières-Petit<sup>3</sup>, N. Lescureux<sup>4</sup>, M. Meuret<sup>3</sup>

Réseau de chercheurs  
**COADAPHT**



# France



68 million inhabitants (117 per km<sup>2</sup>)

78 % urban population

Large diversity of landscapes mosaics:  
croplands, cultivated grasslands, natural  
meadows, scrublands and forests

About 7 500 000 sheep

Numerous and diverse wild ungulates,  
e.g. about 1 500 000 roe-deer



# Grazing in France (*in brief*)



*In plains and valley bottoms, sheep are grazed within fenced pastures. Rotational grazing. Generally, one or two visit per day by the farmer.*



Photo: Idele



Photo: M Meuret

*On hilly and mixed rangelands, partially wooded, sheep are grazed either in fenced pastures or herded by a shepherd.*



Photo: M Meuret



Photo: M Meuret

*On alpine high mountain pastures at summer > 90% of sheep are grazed under the constant care of a shepherd and his sheepdogs along daily grazing circuits.*

Meuret & Provenza 2014



Photo: M Meuret

Wolves were **exterminated** in France in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries.

Since then, French breeders and herders learned to practice grazing in the **absence** of wolves.

Thus, they were **unprepared** when first wolves arrived from Italy in **1993**.



On previous years, i.e. at the time wolves were not yet officially present ...

**1990** - France ratified the international **Bern Convention** about the Conservation of Wildlife and Natural Habitats in Europe.



**1992** - France began to implement the **EU Habitats Directive**, that is the legal duty of conserving outstanding wildlife habitats and their species, wolf included.




# Wolf legal status in France

From the early years, wolves were placed under **strict protection status**. They benefit from the prohibition of any form of deliberate perturbation, capture or killing.

European legal texts open up a possibility of **derogation** *“in order to prevent serious damage if the [wolf] population is in a good state of conservation and in the absence of satisfactory alternatives.”*

*... in other words: when it has been confirmed locally and officially on a farm that all nonlethal protection means have failed.*



EU Council 1992

The full range of recommended damage protection techniques has been used in the French Alps, the region most heavily impacted by predation.



Reinforced human presence: "Assistant herder"



Livestock guarding dogs

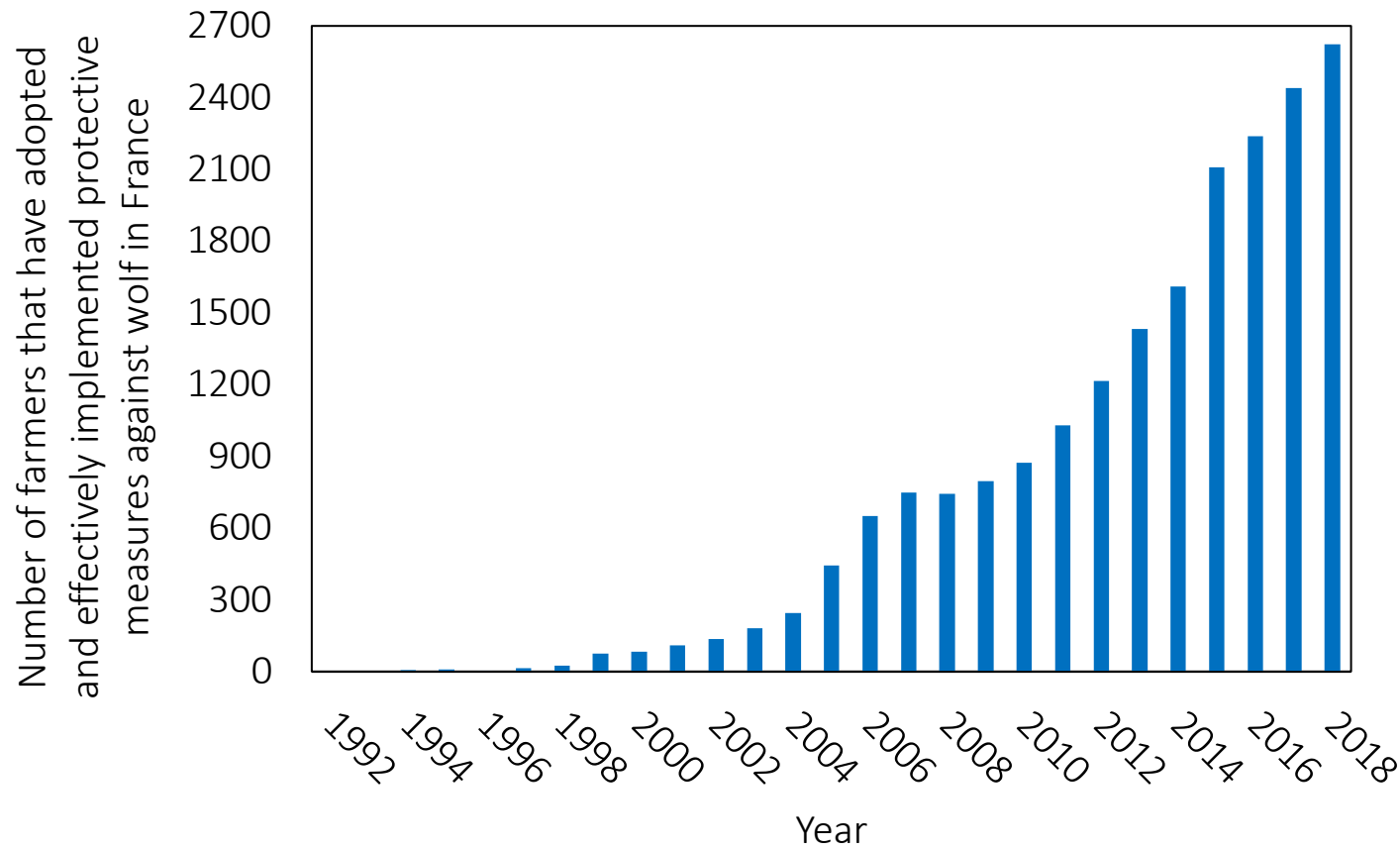


Higher and electrified pasture fence



Herd groupings at night in electrified pens or secured buildings

Damage prevention measures has been increasingly widespread, notably in the French Alps and Provence, having permanent presence of wolves.



Data source: DRAAF Auvergne Rhône-Alpes



In areas under high predation pressure, the physiognomy and accessibility of some farms have been changed considerably.



Photo: TF1



Photo: M. Meuret



The heightening of the fences, their electrification, and watchful guarding dogs, could become a major problem for wildlife, hunters and hikers.

**Fences** - especially when not associated with dogs, **any fence can be considered as an impassable obstacle** for wolves.

Their role is to make the wolf hesitate to enter the pasture.

**Dogs** – Livestock guarding dogs have been multiplied in France, up to **6-20 per farm**. For local authorities, they have become a **public safety threat** on some rural areas.



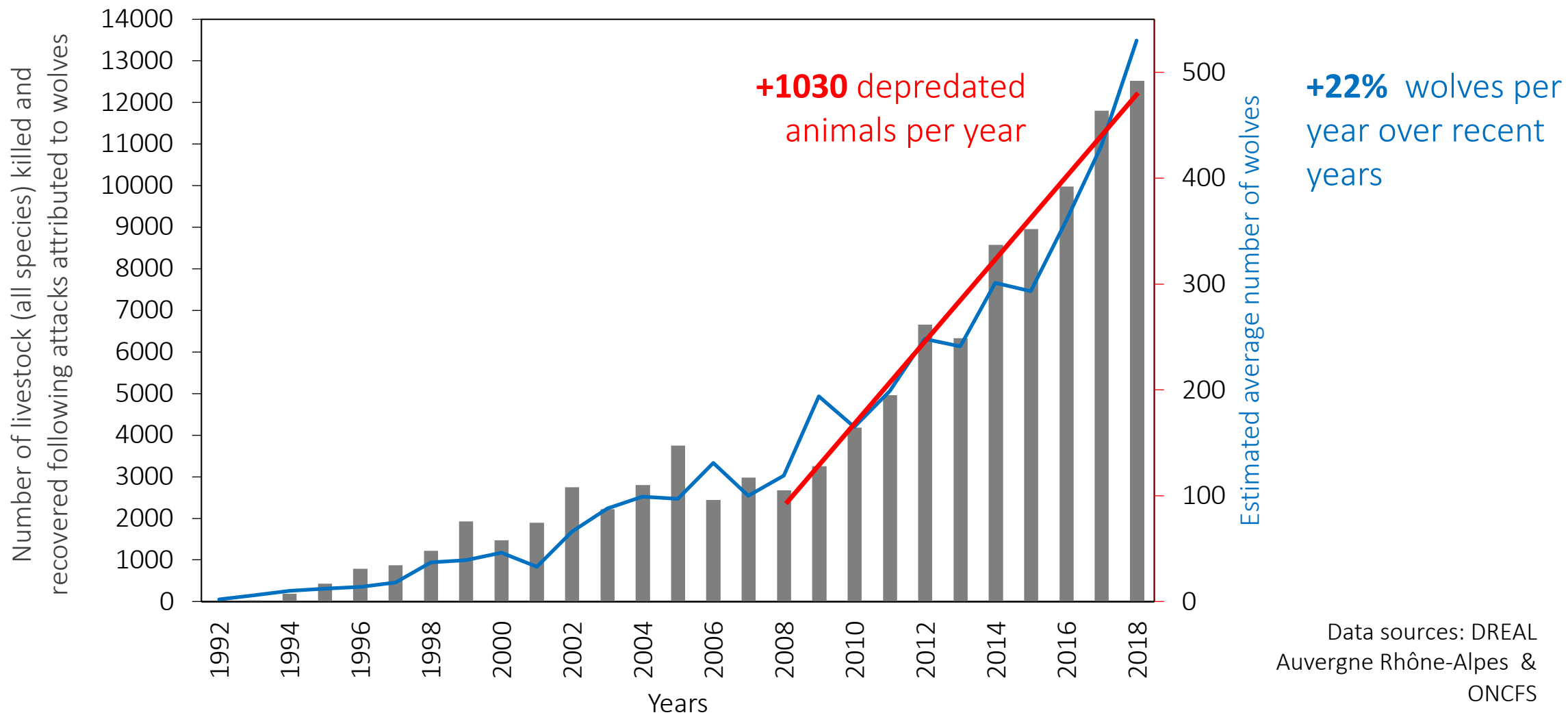
Photo : Alliance-Élevage.com



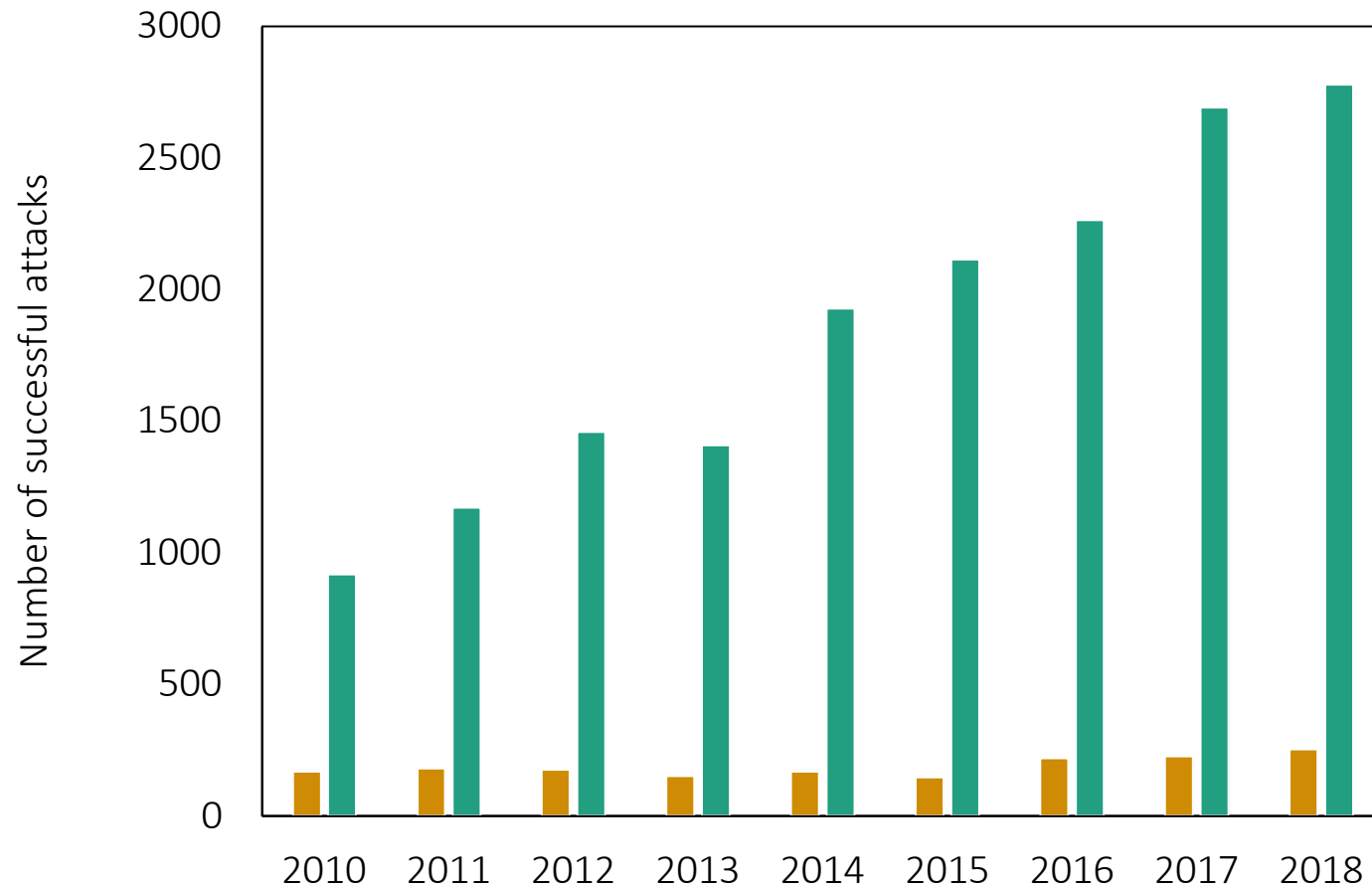
Photo : Hogan des Vents

What results?

# Number of wolves and depredated livestock in France : 1992-2018



In the French Alps and Provence, i.e. most concerned regions, the vast majority **of successful wolf attacks** has been made on **protected herds**.



A herd recognized as **protected** belongs to a farmer or farmers' group that has subscribed to a protection contract **effectively implemented**, that condition being **checked** by damage control officials.

- Unprotected
- Protected

Data source: GéoLoup  
data base - DREAL  
Auvergne Rhône-Alpes



Despair and revolt among farmers that are regularly impacted despite all their efforts to protect livestock.

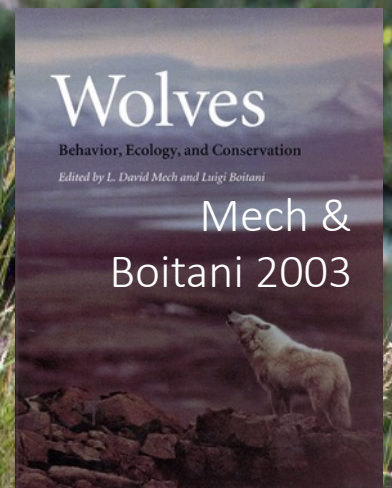
A wolf attack had occur despite the high and strong fence. Wolves dug under the fence.  
*Grazing in enclosure with photovoltaic panels.*



Do we miss something?

We simply miss to consider wolves as they are in reality:  
very effective and adaptable predators

- ✓ Very intelligent
- ✓ Opportunistic
- ✓ Capable of learning...
- ✓ ...within families
- ✓ Highly adaptable
- ✓ Often unpredictable
- ✓ Mobile and prolific



Coming from Italy where they are abundantly poached\*, wolves that were placed under **strict protection status** for 20 years in France have **adapted** to the **more comfortable conditions**.

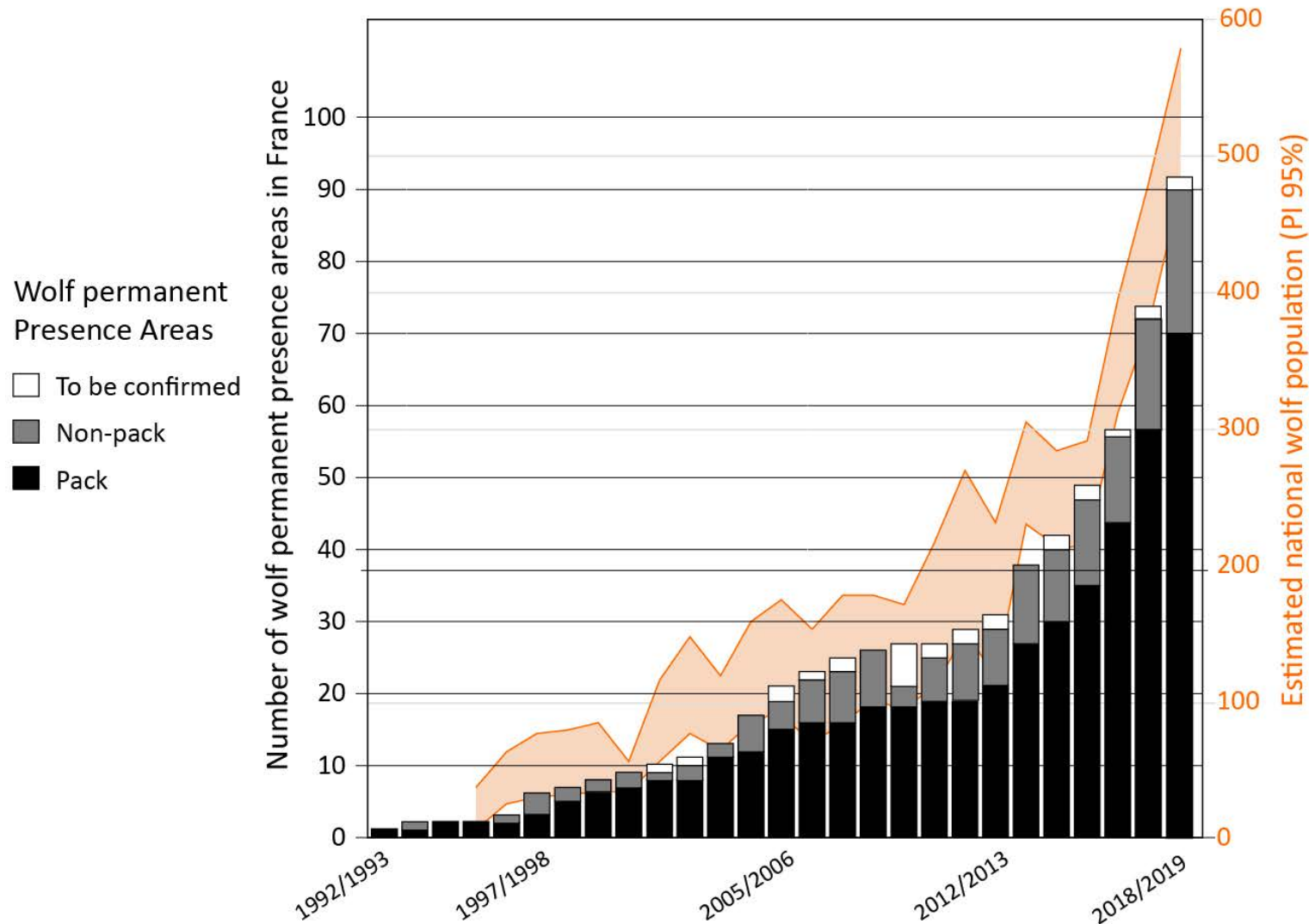
\* poaching estimated by scientists at between 200 and 300 wolves per year.

Galaverni *et al* 2015

Hindrikson *et al* 2016

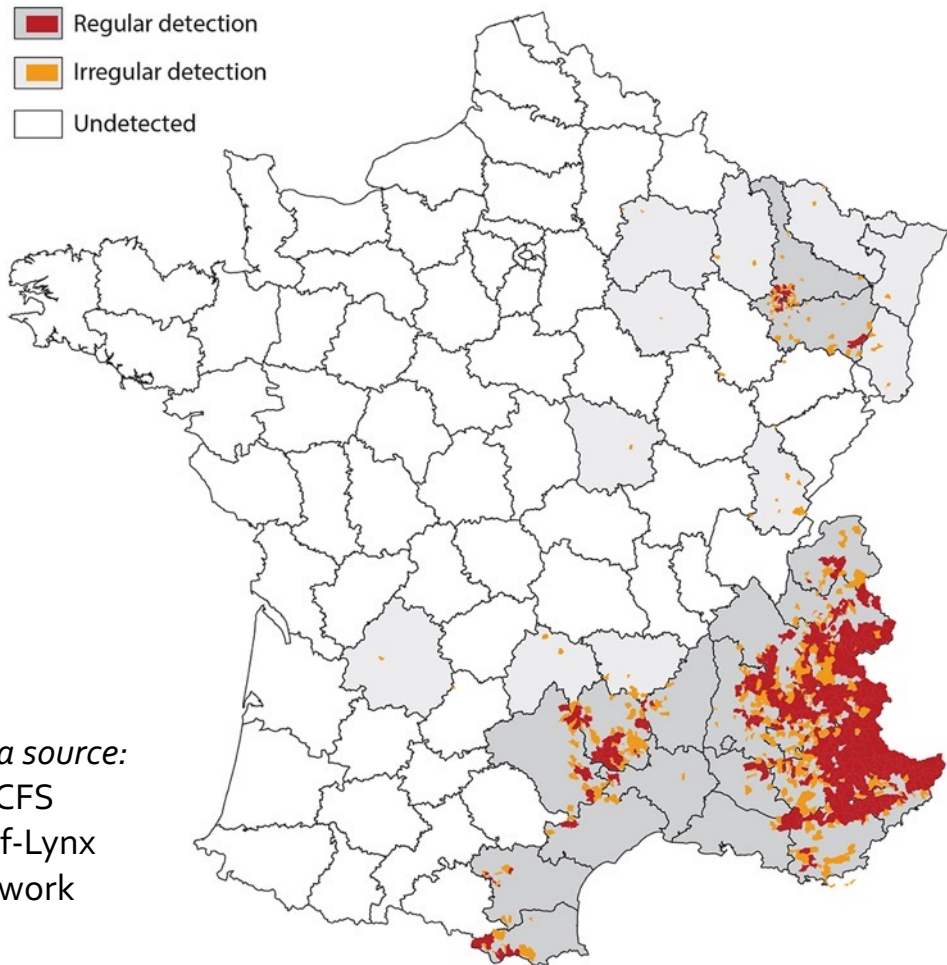
Boitani 2017

The number of wolf **permanent presence areas** is **growing exponentially** in France, reaching 92 (70 packs) at the end of winter 2018-19.



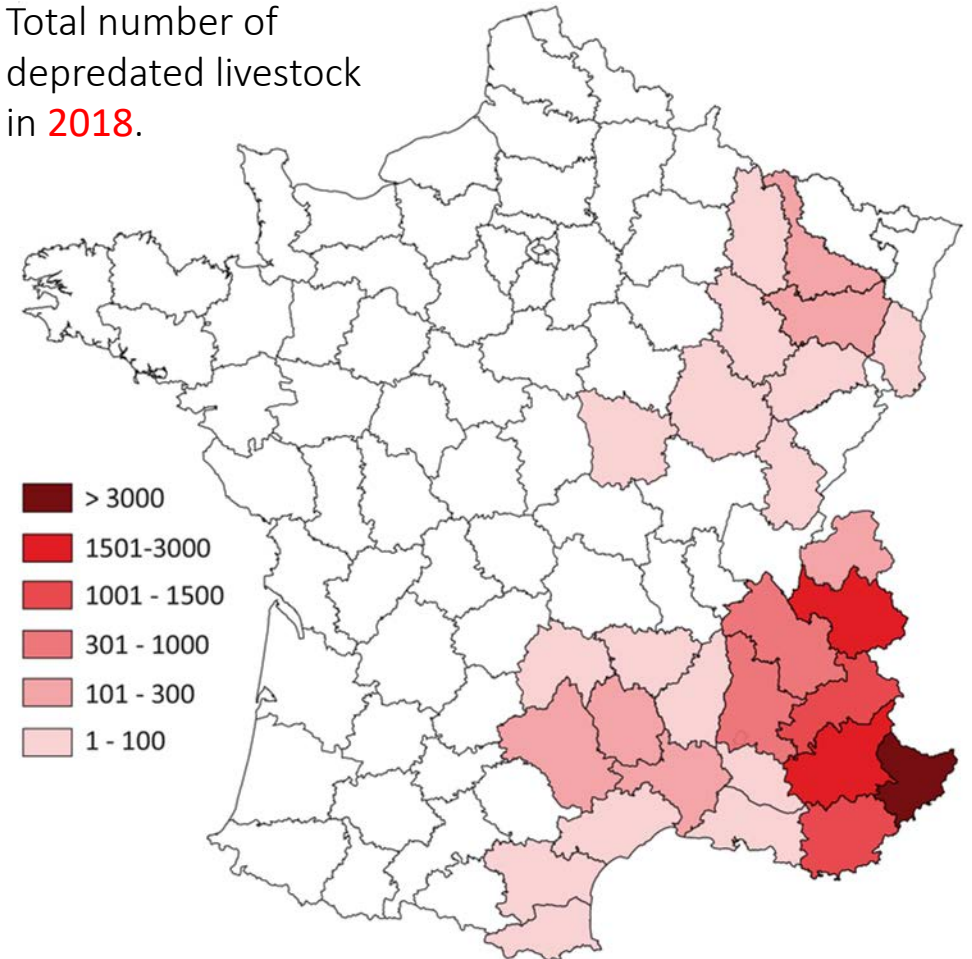
Data source:  
ONCFS  
Wolf-Lynx Network

France hosts nowadays a wolf population living permanently or occasionally on **about a third** of its continental territory.

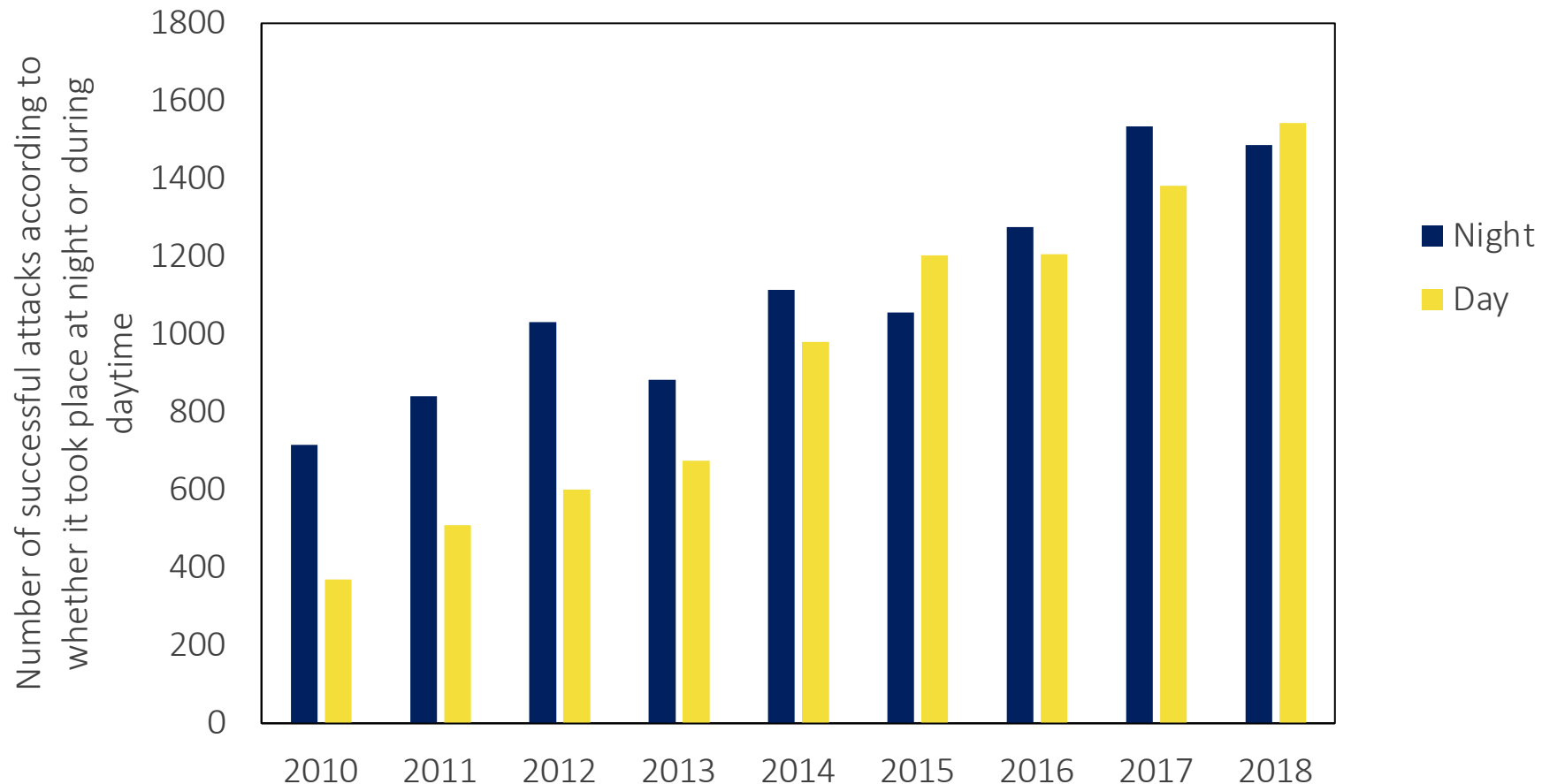


The **southeastern** part of France, i.e. Alps and Provence, where wolves first occurred, still suffer **90%** of the total national **losses**.

Total number of depredated livestock in **2018**.



An example of wolves' ability to **opportunistically change** their behavior is the growing number of **successful attacks** made **during the day** in France, as most livestock animals are now better protected at night.



Data source: GéoLoup  
data base - DREAL  
Auvergne Rhône-Alpes

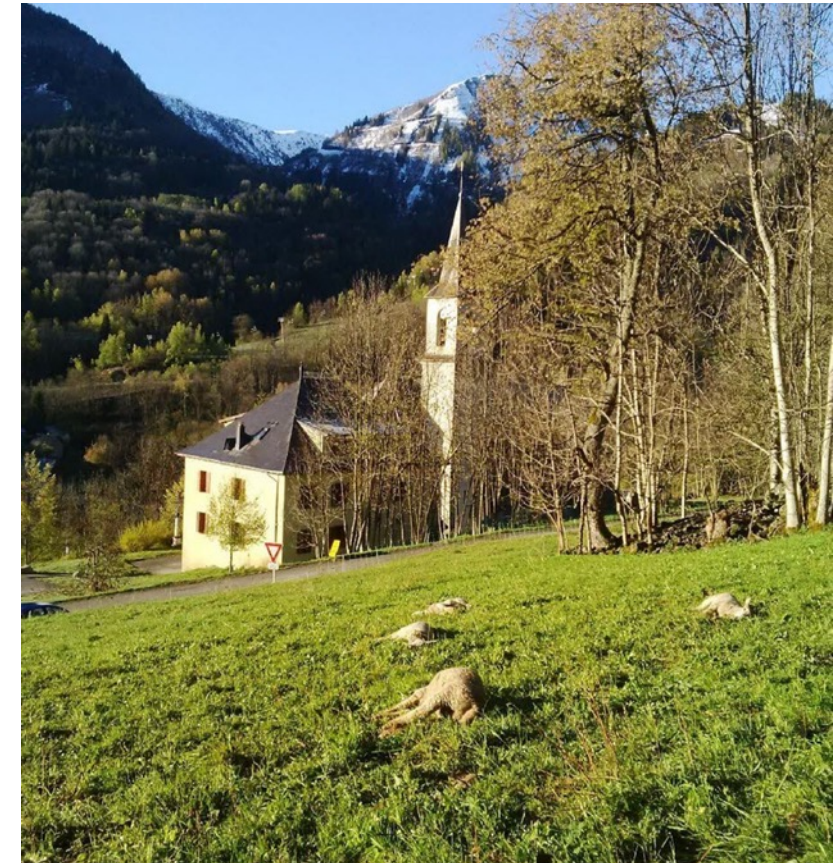
Another sign of **opportunistic change**: wolf attacks are still occurring on high mountain pastures, but there are more frequent **attacks** in **valleys** and **plains**, sometimes very **close to a farm**, road, village, or suburban subdivision.



Géry, Meuse – October 2014

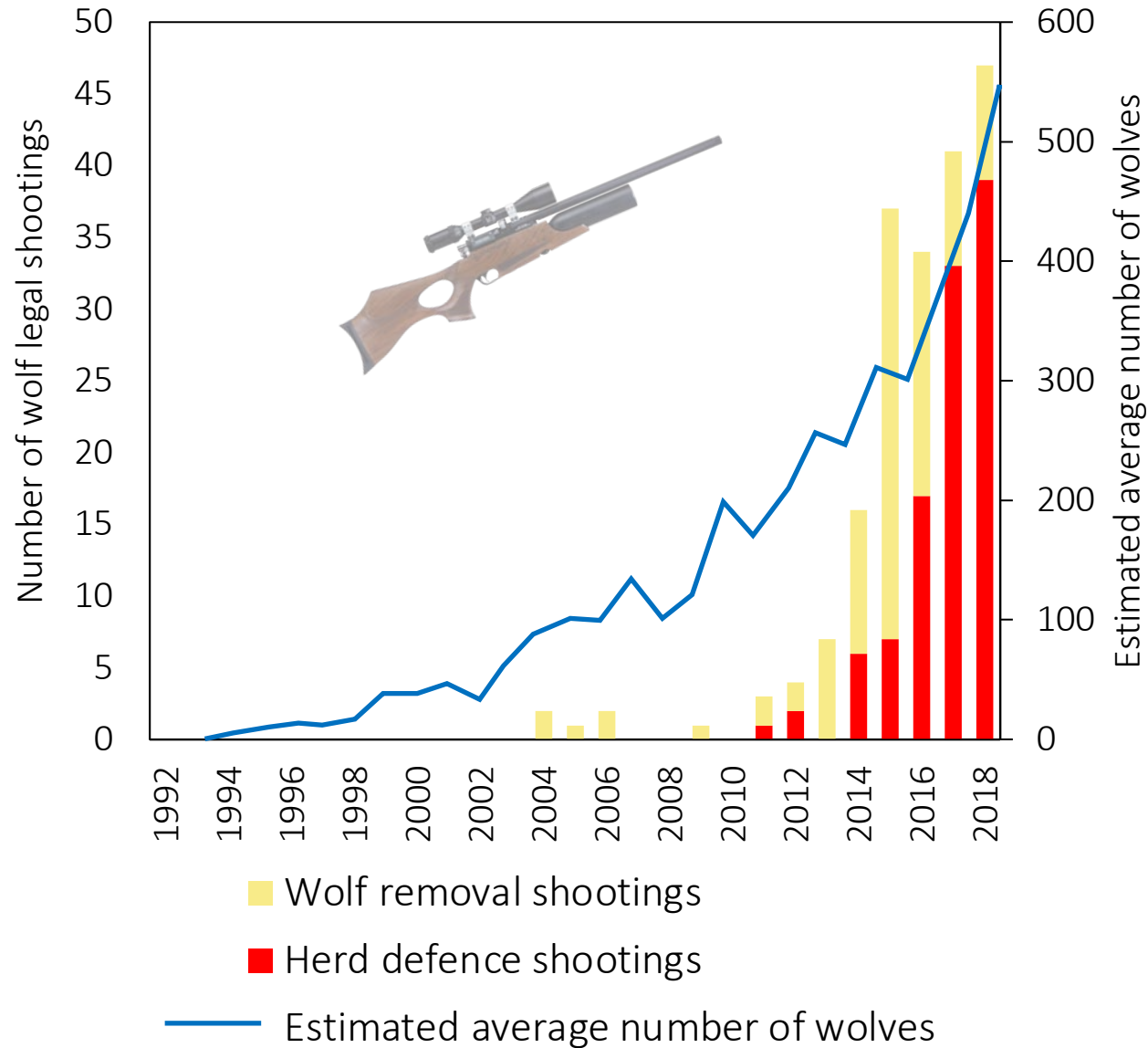


Seyne-les-Alpes, Alpes de Hte Provence  
October 2017



Saint-Colomban-des-Villards, Savoie – May 2017

# The **late adaptation** (2014-15) of wolf-livestock management policy in France.



When it appears that all the **non-lethal** protection means had **failed** ...

...**herd defence shootings** and **wolf removal** actions, which are **derogatory** from France's commitments towards the **EU**, have been granted sparingly to farmers.

Data source: DREAL  
Auvergne Rhône-Alpes &  
ONCFS

In 2015, a professional **Wolf Brigade** was created in France to carry out “targeted shots” on wolves repeatedly attacking herds at a specified location.

It reinforces farmers who have obtained official permission to shoot wolves to defend their livestock.



Photos from documentary film by Didier Laurent & Antoine de Changy / Les films du Bouchon 2019 / ONCFS

Which solution pathway?

We suggest going further  
by re-establishing a **reciprocal relationship** with wolves.

How can we **restore** in wolves that are living in France, or passing through France, the **behavior** of **keeping themselves away from humans** and their breeding activities?



Photo: Fabio Palella

The **adaptive behaviour** of wolves to local conditions and **risk** is a well known process.

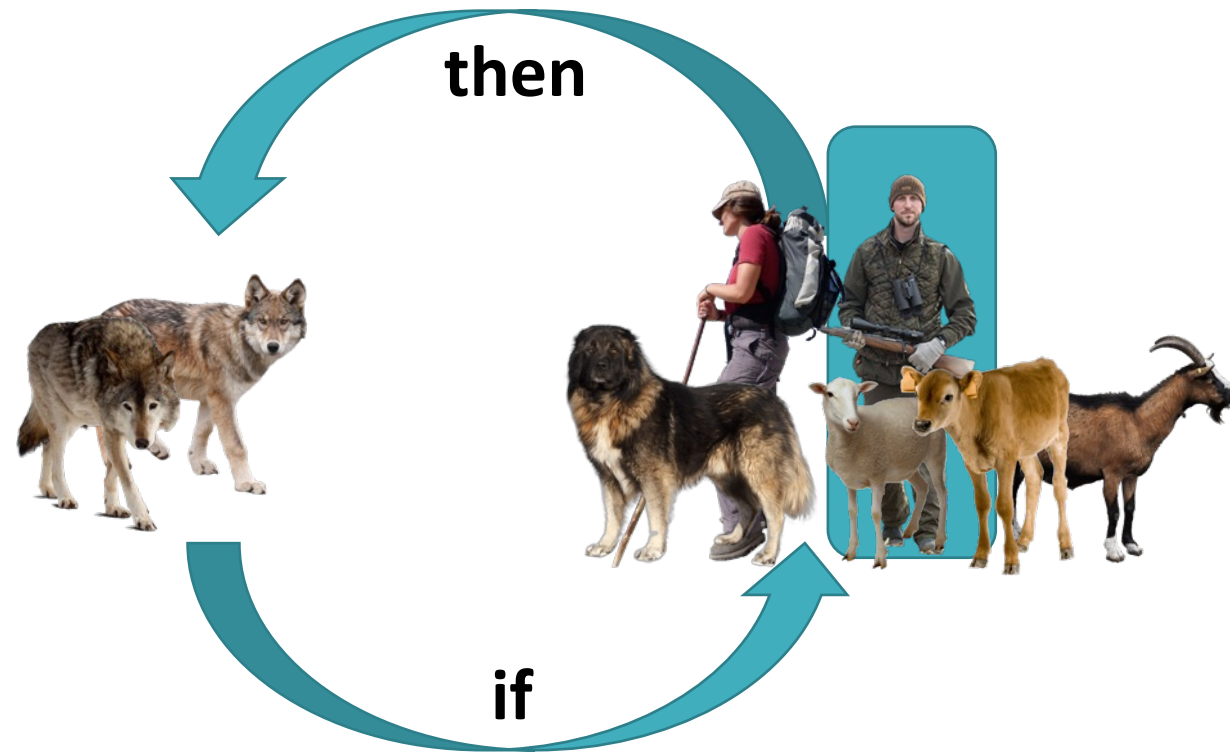
During 20 years in France, livestock **breeders, herders** and **assistant herders**, were not in a position to signify clearly enough to the wolves that they represent any serious kind of threat.

They were **innocuous humans** among so many others in the countryside.



From evidences elsewhere in the world, it appears that the **coexistence** between livestock farming and wolves needs the establishment, or re-establishment, of **reciprocal relationships** in order to constantly maintain an **acceptable distance** and minimize conflicts.

Lescureux 2006, 2007  
Lescureux *et al* 2018



**Reciprocity** corresponds to a **proportional adjustment** between :

- (i) the impact related to predation (ecological, economic, social, psychological,...) **AND**
- (ii) the possibility of exercising direct and legal control over predation and predators.

Reciprocity also involves keeping predators at a distance when their behaviour represents a threat (i.e. close proximity to farms, villages and/or domestic herds).

Reciprocity implies the possible use of **lethal means** (shooting and/or trapping) **before, during or just after an attack**, in order to:

1° eliminate the most reckless individuals or groups ;

2° associate the presence of **humans** working with herds with an immediate and **expectable and severe threat**.

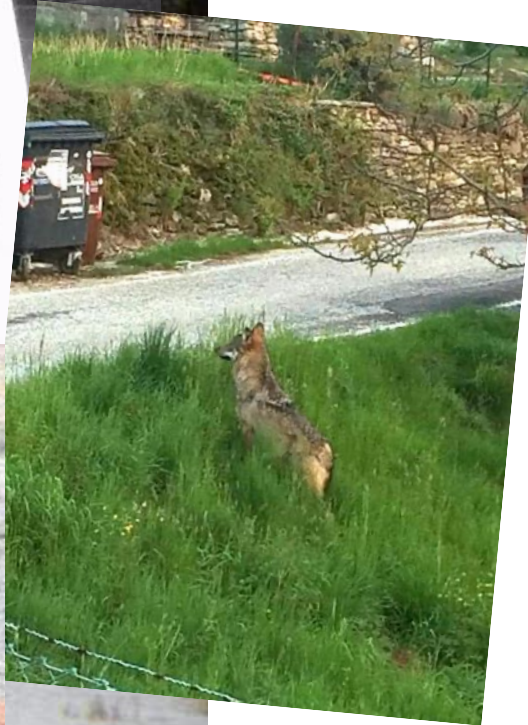
The **non-lethal protective and repulsive means** (human presence, fladries...) will make sense again, not as barriers but as **danger signals**.



Bangs *et al* 2006  
Lescureux *et al* 2018



Shooting or trapping **near** livestock and human dwellings.



Shooting or trapping **away** from livestock and human dwellings.



Photo : Emmanuel Sauvageot

Re-establishment of a reciprocal relationship with wolves is **confronted to:**

### **EU Habitats Directive:**

- imposes that direct control of wolves could be allowed only by derogation and “... *in the absence of satisfactory alternatives.*”
- doesn't allow France to control a number of wolves that do not respect a maximum cap defined yearly and nationally.

**Farmers and herders** cannot become constantly watchful and reactive against wolves, a task that is antagonistic to their other daily activities.

**Danger** that could represent armed people, stressed and lacking good sleep, in **densely inhabited landscapes.**



Conclusion

The means of protecting herds in France, framed by national regulations based on a European Directive, are **based on the premise that wolves are afraid of humans.**

This **fear is not**, in reality, **an intrinsic** and permanent **trait of the species.**

It is at least partly an **acquired behavior**, which must be constantly **reinitiated** by explicitly associating the close human presence with real threat for wolves: severe injuries or danger of death.

Scare techniques, or **non-lethal repulsion**, only make sense when they are a **signal to recall the risk** of death or severe injuries due to non-compliance.

It becomes urgent to deal with the **adaptive capacities of wolves**, but also, and simultaneously, those of herds, farmers, herders, and all the other **users of the land**.

Managing relationships with opportunistic and intelligent predators remains **complex** and highly **dynamic**.

That requires a continuous **process of coadaptation** between wolves and humans.



For more information

Réseau de chercheurs  
**COADAPHT**

<http://www.sad.inra.fr/Recherches/Coadaptation-predateurs-humains>

