Wolf regulation in Valais

Preliminary assessment, identified risks, and strategic recommendations

In 2023, Switzerland adopted a new approach to wolf management. Whereas so-called “population regulation” cullings had previously been carried out reactively - *i.e.*, in response to livestock losses—a proactive regulation policy was introduced by the Federal Council, through a new Hunting Ordinance. Now, after two winters of implementation, what conclusions can be drawn? The Federal Office for the Environment (FOEN) recently issued a statement expressing cautious satisfaction, albeit without providing detailed justification. But have the stated objectives truly been met - or are they likely to be in the future? And how effective have the operational practices been in achieving these goals? This report examines the situation in the Canton of Valais.

As a reminder, wherever it is implemented, wolf regulation generally serves four primary objectives:

1) To reduce predation on livestock (primarily an agricultural concern);

2) To remove bold individuals that no longer fear humans and may, in theory, pose a risk to human safety (a public safety concern);

3) To permit the hunting of wolves in order to encourage public acceptance and reduce illegal poaching (a psychological and sociological consideration);

4) To lower predation pressure on wild ungulates, thereby helping to maintain game populations for hunting purposes (a game management objective). Fauna•vs provided a comprehensive overview of the current state of scientific knowledge on these issues in a 2024 publication (see *fauna•vs info* no. 45[1]).

At a national level, it remains too early to evaluate the outcomes of wolf regulation with respect to the psychological and game management objectives (points 3 and 4). Furthermore, assessing the impact on wild game populations (point 4) would require robust monitoring protocols for animal populations, none of which were established prior to the current regulatory interventions. Consequently, any future assessments risk relying on correlations alone, without the ability to draw definitive conclusions about predator–prey dynamics between wolves and wild ungulates.

By contrast, a preliminary assessment can already be made regarding the "educational effects" or "conditioning" on wolves from proactive regulation (points 1 and 2) - a pedagogical dimension repeatedly emphasized by both federal and cantonal authorities to justify the recent intensification of control measures[2]. Preventive culling is conducted on specific wolf packs, with authorization granted by the Confederation based solely on quantitative evidence submitted by the cantons. This includes data on confirmed damages and the protective measures implemented for livestock[3].

This analysis draws on a range of sources, including data from the Valais Cantonal Hunting, Fishing and Wildlife Service (SCPF) such as presence indicators published on the State of Valais website and DNA analyses conducted by the Conservation Biology Laboratory at the University of Lausanne. Genetic data from KORA and camera trap footage from Mission Loup (Wolf Mission) and the University of Bern's Conservation Biology unit have also been included.

However, we identified numerous inconsistencies in the statistics published by the various agencies involved (FOEN, SCPF, KORA). Notably, there are clear discrepancies between the figures presented on the SCPF website and those cited in official press releases from the State of Valais. For instance, during its press conference on February 5, 2024, the SCPF reported that 16 pups and 11 adults had been culled by the end of the first regulation season. Yet the current list indicates 18 pups and 9 adults. One of the two additional "pups" (M397), despite being genetically profiled, could not have been a pup at all, as it was born in 2022. This reflects a clear misinterpretation of the data. (Corrected figures are provided in Section 2)

Wherever possible, we cross-checked the available data and based our final assessments on our understanding of the facts, including our direct involvement in technical monitoring of the Valais wolf population through research conducted by the University of Bern and the Groupe Loup Suisse (Swiss Wolf Group). The statistics on livestock damage, however, remain particularly unclear, making it difficult to achieve coherent clarity. Ultimately, we have no means to verify the accuracy of reported depredation incidents - especially concerning the specific conditions of livestock protection, such as protected versus unprotected pastures, non-protectable areas, and the presence or absence of guard dogs, electric or non-electric fencing, and shepherds.

Footnotes:

1. Arlettaz, R. 2024. Régulation du loup : que dit et qu'ignore la science? (Wolf regulation : what science says and ignore) - fauna•vs info 45: 44-51. https://is.gd/CJDC4e

2. In principle lethal, but some only injured wolves; state authorities have not provided any figures on this matter.

3. It can be noted that federal authorizations have been very generous compared to the actual extent of damage (see section 5).

1. Population size and number of packs

According to the most reliable estimates, Valais had nine to ten wolf packs in autumn 2023.

It's worth recalling that, under criteria defined by the Confederation in agreement with the cantons, a cross-border wolf pack is counted as a "half-pack." Based on this system, Valais received full regulation authorizations for seven packs—amounting to roughly three-quarters of the total number of wolf packs. However, legal appeals filed by environmental NGOs led to a complete suspension of regulation for two of these packs and a partial suspension for a third. In the latter case, two individuals from the Nanz pack—the alpha male and a pup—had already been killed by the time the appeal was upheld. Despite this half-pack classification, Valais authorities claimed in autumn 2023 that there were 13 packs in the canton, suggesting an intent to regulate less than half of them, when in reality they were aiming to regulate three-quarters of the total population. No pack was fully eradicated during the first regulation season. Yet by autumn 2024, the same authorities were reporting just 11 packs - still without accounting for half-packs. How can this reduction be justified? In fact, two of the originally listed packs—Nendaz-Siviez and Fou-Isérables—were assigned the exact same breeding pair in SCPF reports submitted with the first batch of regulation requests to the Confederation in autumn 2023. This duplication error seemingly went unnoticed when the files were transmitted to FOEN. Fortunately, as of winter 2024–2025, the State of Valais began grouping these two "paper packs" under the unified name of *Nendaz-Isérables*, thereby tacitly acknowledging their mistake. Additional confusion surrounded the Mont Brun, Anniviers-Réchy, and cross-border packs, though we will set aside those details for now[4]. During the second regulation season (2024–2025), five of the canton's "eleven" officially recognized packs were granted full regulation authorizations, even though some had caused virtually no damage (a point we will return to in Section 5).

As of autumn 2024, seven wolf packs in French-speaking Valais have home ranges located entirely within the canton: Salentin, Les Toules, Mont Brun, Nendaz-Isérables, Hérens-Mandelon, Ferpècle-Arolla, and Anniviers-Réchy. In addition, four packs—Dent d'Oche, Chablais, Hauts Forts, and Posettes—have cross-border territories and are officially counted as half-packs. This brings the total to nine recognized packs in the region. In Upper Valais, two fully Valaisan packs are present: Augstbord and Nanz. Two additional packs—Simplon and Monte Teggiolo—are cross-border as well. Figure 1 illustrates the distribution as of autumn 2024, showing a total of twelve wolf packs (to the best of our knowledge).

Considering the relative sizes of the two regions and their similar densities of wild ungulate prey, Upper Valais—currently home to just three packs, or one-third as many as in French-speaking Valais—should, in theory, support a greater number of packs. This discrepancy likely reflects not only the intensity of regulation efforts in the area, but also the poaching that has gone on for years. This interpretation is reinforced by the marked spatial and temporal instability of the Augstbord pack, where the breeding male is frequently replaced - a pattern unlikely to be explained by official culling alone. It is also possible, however, that authorities in Upper and Lower Valais differ in how they identify and map the spatial ranges of wolf packs (see Fig. 1); we will return to this issue later.

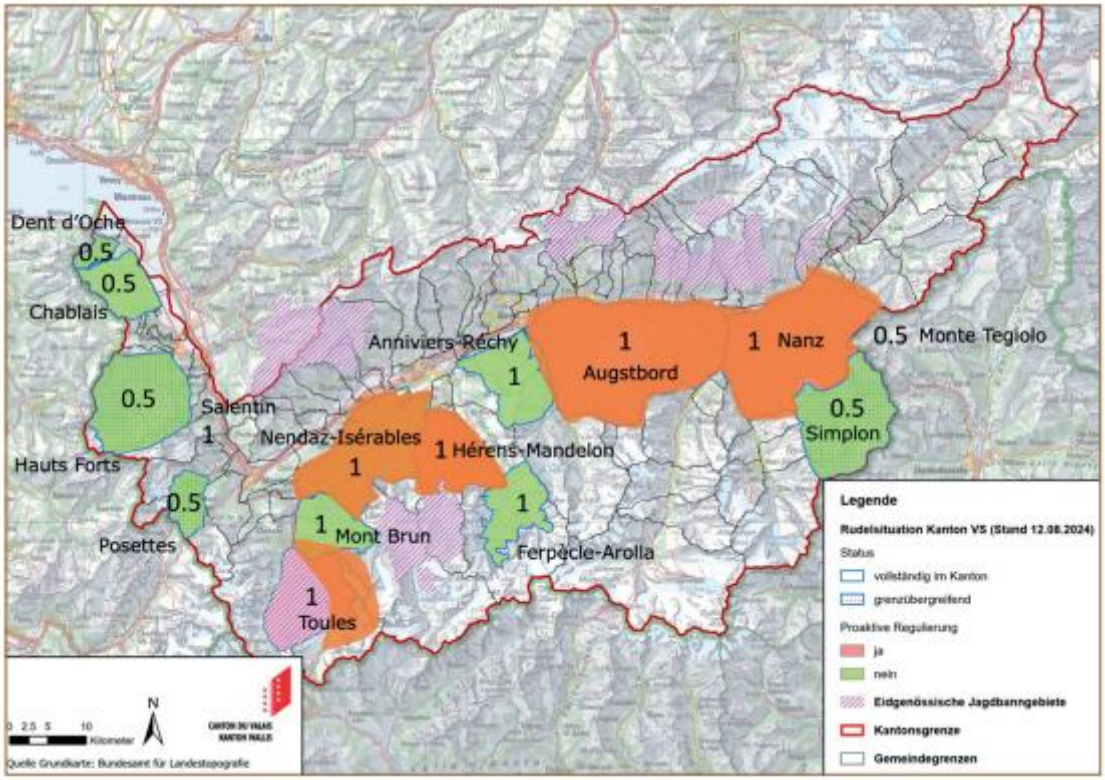

Fig. 1: Wolf packs in Valais according to official projections (SCPF, August 2024), with additions by the Swiss Wolf Group. Cross-border packs are counted as half-packs (0.5), while "1" indicates a pack entirely within Valais territory. As of autumn 2024, there were twelve packs in total - nine in French-speaking Valais and three in Upper Valais. The official map had previously omitted the Salentin and Monte Tegiolo packs, which we have added. The orange outlines indicate the zones where proactive wolf regulation was carried out between September 2024 and January 2025. Note the expansive home ranges assigned to the two Upper Valais packs, which may suggest the existence of additional, yet unrecognized, packs.

Footnote:

4. Arlettaz, R. 2024. Meutes de loup présentes en Valais. Fauna•vs info 45: 37-43. https://is.gd/S2VyY7

2. During the winters of 2023–2024 and 2024–2025, the canton of Valais culled 27 and 34 wolves, respectively, as part of its proactive regulation strategy. But what was the social makeup of the individuals removed? In the first winter, 17 of the 27 wolves killed were pups (born in 2023), while three were confirmed adult breeders. A fourth adult had recently joined the Ferpècle-Arolla pack but had not yet reproduced. The remaining six "adults" appeared to be non-breeding individuals—some of whom were likely subadults. Distinguishing between subadults (i.e., wolves in their second year) and fully mature adults—or even between pups and subadults—can be challenging. One notable error - a 2022-born subadult was incorrectly classified as a pup by the SCPF, a misidentification that remains uncorrected in official records. In the second winter, 19 adults and 15 pups (born in 2024) were culled. Of the adults, only three were confirmed breeders. Taken together, across both winters, 61 wolves were removed—but only 6 of them (roughly 10%) were confirmed to be active breeders. In other words, the majority of those targeted by regulation were non-breeding individuals - a predictable outcome, given that this demographic represents the bulk of the population. These six breeding adults correspond to about 12% (in 2023–2024) and 10% (in 2024–2025) of the presumed total breeding population, assuming two reproductive individuals per pack—a typical pattern for this species in Europe. For the purposes of this estimate, cross-border packs are counted as full packs, since they are highly likely to contribute individuals to the Valais population. Later, we will explore the implications of these removals, both for the species' demographic trajectory and for the effectiveness of the overall regulation effort.

3. The genetic lineage of culled wolves provides crucial insights into the relationships between individuals. This information is especially important for determining whether a pup or an immature/subadult wolf (at least one year older than a pup) is descended from the presumed breeders - that is, the alpha male and female of a given pack.
Such analysis requires genetic profiles of the pack's core members, particularly the breeding pair, which are available for most monitored packs.

During the 2023–2024 culling campaign, covering five packs (Chablais, Hérens-Mandelon, Toules, Augstbord, and Nanz), eleven of the 27 wolves culled (41%) either did not belong to the targeted pack or could not be genetically assigned to any specific pack. Among the ten wolves identified as adults, this figure rises to 60% (six out of ten). For instance, the culling of M379 was mistakenly attributed to the Hérens-Mandelon pack, while he actually belonged to the Ferpècle-Arolla pack. Similarly, M389 and F181—also culled—had been detected on the slopes west of Viège and were likely transient individuals or wolves establishing new territories near the Rhône plain.

M378, which was also culled in the same area, originated from the Binntal. Of the six individuals in question, only M408 (assigned to the Hérens-Mandelon pack) had not previously been genetically identified. However, this adult male may actually have belonged to one of the neighboring packs—Anniviers-Réchy or Augstbord—something that could be confirmed through genetic lineage analysis. Excluding these two somewhat uncertain cases, we can conclude that during the first regulation campaign, at least 40% of the “adult” wolves culled did not belong to the packs targeted for removal.

In reality, only pups can be definitively ruled out as non-natal individuals within a pack due to their age. Unlike subadults and other non-breeding adults (who may, under certain circumstances, have originated from elsewhere and integrated into the group), pups are necessarily the offspring of the resident breeding pair. While such external integration appears to be relatively rare, it cannot be entirely ruled out when interpreting the data. What is clear, however, is that among the 17 pups culled during the first regulation campaign, six (35%) did not originate from the targeted pack but belonged to a different one.

During the 2024–2025 regulation, conducted again across five packs (Toules, Nendaz-Isérables, Hérens-Mandelon, Augstbord, and Nanz), 50% of the wolves culled (17 out of 34) could not be conclusively linked (genetically or otherwise) to the targeted pack. Of the 19 adults culled that season, only four (21%) were confirmed members of the pack under regulation. What about the remaining 15? For example, F239 was genetically identified in July 2024 within the Mont Brun pack’s territory and was likely misattributed to the Toules pack.

The breeding male of the Nendaz-Isérables pack, M246, was culled at the boundary of the Hérens-Mandelon territory under an authorization valid for the latter pack, not for Nendaz-Isérables. F238 was identified through DNA analysis on five occasions between June and October 2024 within the Ferpècle-Arolla territory, where she was born in 2023, but her killing was mistakenly attributed to Hérens-Mandelon. F265 was shot on the northern slope of Simplon and was likely misassigned to the Nanz pack. M497 had previously been genetically identified in Ticino. Additionally, M452, attributed to the Nanz pack, was genetically identified in July 2024 east of the Weissmies, alongside F179, the breeding female of the Simplon pack. The remaining nine adults culled (Les Toules: M500, M506, and M521; Augstbord: M483, F261, and F285; Nanz: M493, M502, and M512) had never been genetically identified before, making their membership in these packs uncertain.

Consequently, the error rate of culling adults outside the targeted packs was at least 26% during the second regulation period (5 out of 19 individuals). For the 15 pups culled in 2024–2025, this error rate was lower, at 13% (2 out of 15: F280 and M514).

There was considerable geographic variation in the accuracy of wolf culls across the two regulation campaigns. Notably, “misidentified” kills primarily affected the Toules pack—where five of the six wolves culled during the second campaign could not be genetically linked to the pack—and the Hérens-Mandelon pack during both periods. The Nanz pack also experienced such issues during the second campaign. In contrast, the regulation efforts targeting the Nendaz-Isérables pack, which was only subject to culling during the second period, proved highly effective, owing largely to excellent monitoring and genetic tracking.

Could the second phase of regulation have been more effective than the first in terms of wolf removals? This seems likely based on the statistics for pups. However, there was a notable change in how the Valais Hunting, Fishing, and Wildlife Service (SCPF) communicated between the two periods. While precise locations of wolf shootings were publicly available during the 2023–2024 winter season, this information was no longer provided during the 2024–2025 regulation season. For any given culled individual, the website map no longer allows for pinpointing the exact location where the shot was taken during the second season.

Furthermore, the report titled “Causes of wolf mortality in Valais” only indicates the pack associated with the removal, without providing spatial details for verification. As a result, the absence of detailed spatial data makes it impossible to accurately assess whether the shootings were appropriate for the targeted packs. This lack of transparency may also help explain the surprisingly low reported error rate of just 13% for pups. Since such data are crucial to understanding the regulation efforts and their impacts, it is deeply regrettable that this information is no longer shared publicly in a transparent manner.

Regarding the wolves culled, it is evident that the so-called “errors” — wolves shot that apparently did not belong to the targeted pack — result either from gaps in genetic monitoring or from inaccurate delineation of pack home ranges by the official monitoring program. Consequently, many wolves, both adults and juveniles, were mistakenly removed from neighboring packs. This is particularly true for wolves presumed to have been culled within the Toules pack’s home range (Entremont), but which in reality mostly belonged to a pack centered around Mont Brun (Bagnes).

Similarly, many wolves shot within the Hérens-Mandelon pack's area actually belonged to the Ferpècle-Arolla pack (to the south), which had long gone unnoticed by authorities, as well as to the adjacent Nendaz-Isérables pack (to the west) or even Anniviers-Réchy (to the east). Likewise, a pup attributed to the Chablais pack in 2023–2024 was most likely a member of the Dent d'Oche pack. All these "misplaced" shootings clearly occurred at the margins of pack territories. A comparable issue affected the Augstbord pack during both culling campaigns. This large territory, assigned to a single pack, overlaps with at least one other pack's range (Anniviers-Réchy) and may even encompass two distinct packs. The same applies to the Nanz pack, where six out of nine wolves culled in the second period likely belonged to a pack farther south, probably Simplon or Monte Teggiolo.

Finally, it's important to note that categorizing culled wolves by age class can be challenging. Distinguishing a second-year immature or subadult from a fully mature adult is often difficult (if not impossible) especially at the moment of the cull. This issue can only be avoided by strictly preventing any untimely shootings. However, age classification could be significantly improved by refining the interpretation of available genetic data. For instance, the SCPF classified F238, culled on November 10, 2024, as a female pup of the year within the Hérens-Mandelon pack's territory. Yet, her DNA had been detected at least six times since June 2024 across the entire range of the Ferpècle-Arolla pack, which notably did not reproduce that year.

Photo : Wolf of Hérens-Mandelon Pack (Wolf Mission)

4. Timing and Location of Regulation Shootings

Several “successful” lethal shootings occurred outside the authorized time frame or designated areas (shootings resulting in non-lethal injuries have been excluded). For instance, F239 (from the Les Toules pack) was killed on September 20, 2024, despite the Confederation’s explicit requirement not to target any adult within a breeding pack before the end of October, as the loss of adults before this date could jeopardize pup survival[5]. [It should be noted, however, that F239 did not belong to the targeted pack.] On November 6, 2024, M246, the breeding male of the Nendaz-Isérables pack, was shot (under a permit issued for regulating the Hérens-Mandelon pack) at the border between their respective territories, before formal authorization was granted for Nendaz-Isérables (November 19, 2024).

On September 19, October 5, and October 24, 2024, three adults (M271, M483, F261) were shot within the Augstbord pack while pups were still present at those times. These cases would constitute a violation of the animal protection law. Similarly, on September 11, 2024, M365, the breeding male of the Nanz pack, was killed while pups were present. Finally, note that M379, who had joined the Ferpècle-Arolla pack just before the start of the 2023/2024 culling, was shot on December 7, 2023, at La Tour (Evolène), outside the authorized area for regulating the Hérens-Mandelon pack and only 34 meters from residences - raising safety concerns and violating the Hunting, Bird Protection, and Wildlife Mammals Act (LChP).

Footnote:

5. In reference to the decision by the Federal Office for the Environment (FOEN) dated October 8, 2024, concerning the proactive regulation request submitted by the Canton of Valais.

5. Livestock Depredation and the Justification for Culling

In 2023, the total number of officially recorded livestock losses in the canton of Valais (primarily sheep) was 401[6]. In 2024, the number dropped to 341. While this apparent decrease may seem significant, we will refrain from drawing conclusions, as only long-term trends are truly meaningful. Nonetheless, opponents of wolves already cite this decline as evidence of the effectiveness of culling, whereas supporters attribute it to improved livestock protection measures. Since correlation does not equal causation, we won't elaborate further here—several more years of data will be required to form a clearer picture. That said, the absence of a properly designed experimental approach to the culling policy - such as implementing lethal removals in a stratified manner based on the types of protection measures in place and comparing results against control packs - may permanently compromise the ability to interpret outcomes without ambiguity. We have already highlighted this strategic oversight in previous public statements.

That said, it is nonetheless revealing to compare French-speaking Valais (Valais romand) with Upper Valais (Haut-Valais), based on the official reports from January 2024 and 2025. In 2023, 62% of all confirmed livestock depredations attributed to wolves occurred in Haut-Valais (n = 248), despite the region having three times fewer packs than Valais romand (n = 153; 38%). In 2024, this disparity grew even more pronounced, with 78% of depredations reported in Haut-Valais (n = 265), compared to just 22% in Valais romand (n = 76).

In 2023, a single wolf pack in French-speaking Valais (Valais romand) caused, on average, six livestock losses under protected conditions, twelve under unprotected conditions, and none in situations deemed non-protectable. In 2024, those averages dropped to five, four, and zero, respectively. The situation in Upper Valais (Haut-Valais) was markedly different: in 2023, each pack was responsible, on average, for 16 losses under protected conditions, 16 under unprotected conditions, and 19 under non-protectable conditions. In 2024, these figures rose to 29, 15, and 5, respectively[7]. The contrast between the two regions is striking.

Looking more closely at the official statistics from regulation requests, the Augstbord pack was officially held responsible for 26[8] losses under protected conditions in 2023 (out of 37 total incidents)—25 of which occurred in flocks protected only by fencing, without any livestock guardian dogs. One additional loss occurred in a flock that had two guardian dogs but no fencing.

A similar pattern appeared in 2024: all 23 protected-condition losses (out of 29 total) were linked to flocks secured only with fencing and no dogs. As for the Nanz pack, only five of the 53 losses in 2023 occurred under protected conditions. Four of these involved flocks with only electric fences and no dogs, while the fifth involved a guard dog but lacked an electrified fence. In 2024, all 21 losses classified as “protected” (out of 47 total) occurred in flocks guarded solely by electric fencing, again without dogs.

The main factor behind these regional differences (Haut-Valais vs. Valais romand) appears to be the type and quality of protective measures implemented against wolf attacks. In many areas of Haut-Valais, so-called “protected” pastures rely mainly on electric fences, whereas in Valais romand, electric fences are far more frequently paired with guardian dogs. These data clearly demonstrate that livestock losses are significantly reduced when both key protective measures—electric fencing and guardian dogs—are properly applied.

It’s also worth noting that the two officially recognized wolf packs in Haut-Valais (as spatially defined by the authorities; see Fig. 1) occupy significantly larger territories than their counterparts in Valais romand, which raises questions. However, even if one assumes that the Augstbord and Nanz regions actually contain more than two wolf packs each, the stark regional disparity in average losses per pack would still remain.

Finally, it’s important to highlight that flocks monitored by a shepherd in addition to being protected by electric fences and guardian dogs report virtually no losses. Across the territories of the seven packs targeted for regulation in 2023 and the five in 2024, only 19 animals were lost to predation between January 1, 2023 and December 31, 2024 despite being under maximum protection.

This accounts for only 11% of losses recorded in so-called protected situations during the two regulation periods. However, it’s important to note that at least ten of these 19 losses occurred under conditions that did not strictly comply with the protective trio of shepherd – fencing – guard dog. These included poor supervision or sheep being outside their nighttime enclosures. Therefore, the actual loss rate under fully protected conditions (using all three protective methods) likely represents no more than 5% of losses in protected situations.

Documentation of predation on livestock is used to justify regulation requests. However, sometimes the case against wolves appears questionable. For example, the Hérens-Mandelon pack was subject to complete removal during the second phase, despite having been responsible for only one single predation event in an unprotected context up to August 2024. This is why the Federal Office for the Environment (FOEN) initially denied the regulation request, specifically asking for proof of reproduction in 2024. Yet, this pack did not reproduce that year. Nonetheless, simple intervention by the Valais State Council (notably Frédéric Favre) with the federal authorities led to approval for the pack's full removal. Conversely, some packs responsible for significant predation were never the subject of regulation requests.

For instance, the Ferpècle-Arolla pack accounted for 37% of protected-area losses across French-speaking Valais in 2023. Similarly, the Salentin pack was responsible for 55% of protected losses in 2024. And what should we make of the authorization to completely eliminate the Nendaz-Isérables pack, when only a single loss was attributed to it in 2024 (albeit a calf, conveniently predated on September 19, 2024[9]) under protected conditions (five-strand electrified fence). It should be remembered that under Swiss Hunting Law (LChP), cattle are considered unprotectable beyond their first two weeks of life, during which they must be under strict supervision.

Finally, it is worth noting that losses from September and October 2023 (cited to justify pack regulation during the first phase) were systematically re-reported in requests for the second season. This approach is questionable as it artificially inflates statistics to justify the need for regulation. Examples include: Hérens-Mandelon only had one confirmed protected-area loss in 2024, but three additional losses dated September 2023 were later added - yet the 2023 report listed only one for that period, meaning two losses were missing from the 2023 file; The Toules pack had only one protected loss in 2024, but five September–October 2023 losses were appended; For the Augstbord pack, this duplication inflated protected-area predations by 25 losses in 2024.

Footnotes

6. There is a discrepancy between the figures reported by the Valais Cantonal Office for Hunting, Fishing, and Wildlife (SCPF), which states a total of 389 livestock losses in 2023 in its report dated January 2, 2024. This figure differs from what can be calculated using the data available on the canton's official website. The gap could potentially be explained by predation events that occurred after the regulation requests were submitted. However, only eight additional sheep losses were recorded in November and December 2023. This leaves a discrepancy of twelve losses between the canton's official sources.

7. Very similar numbers are obtained when performing the same calculations based on the official regulation request reports.

8. Caution: The regulation request sent by the SCPF to the Federal Office for the Environment (FOEN) on November 2, 2023, lists 26 predation incidents under protected conditions, whereas the report dated January 9, 2024, mentions 40 such incidents. This would mean the pack killed 14 additional animals under protected conditions in November and December 2023. However, in the 2024 regulation request file submitted to FOEN (which, incidentally, duplicates some attacks going back to September 1, 2023), only seven additional losses are recorded - not 14.

9. Some sources report that a calf was deliberately exposed as bait in a pseudo-protected setting to provoke wolf attacks.

Photo : inadequate fences on a sheep farm in Valais (Wolf Mission)

Interpretation and Proposed Measures

1. Population Dynamics and Social Structure

The scale of the cull in the Valais wolf population may seem large in absolute terms, with 61 wolves killed over two seasons of proactive regulation. The actual population size is unknown and can only be estimated. Assuming, as official agencies do, a total population of 100 to 120 wolves in Valais, this cull would have removed just under a third of the cantonal population.

However, the reproductive segment (relatively well-known through identified packs, each typically comprising an alpha male and female) was only lightly affected, around 10–12%. This is below the threshold needed to stabilize or reduce the population. Demographic models indicate that stabilizing population size (achieving a growth rate, or lambda, of zero—below which the population shrinks and above which it grows) would require removing many more breeding individuals annually and repeating this consistently each year.

Additionally, immigration (including from cross-border packs) is a key factor, though difficult to quantify. This immigration rate is likely steady and high and may increase due to a "vacuum effect" if lethal removals empty territories. Therefore, current regulation efforts are unlikely to halt population growth; at best, they may slightly reduce the annual intrinsic growth rate.

This has been recognized at the national level in FOEN's first assessment on May 27, 2025, titled *"Rapid population growth has been curbed."*

Looking further into the demographics and regulation policy, the Valais region has hosted about ten to twelve packs in recent years, including cross-border packs. These packs have gradually distributed themselves across the territory to ensure sufficient access to food resources - mainly wild ungulates such as deer[10]. A pack cannot survive or reproduce in a territory without adequate resources, so each secures a large enough home range to sustain enough prey.

A simplified territorial map of Switzerland (Fig. 2) illustrates the current approximate distribution (2023–2025) and what a stable wolf distribution might look like once much of Switzerland is colonized.

This scenario assumes that the Swiss population gradually adapts to coexisting with wolves, meaning that, over time, the entire potential habitat becomes colonized, except the heavily urbanized areas of the Central Plateau (though even these may eventually be settled). This spatial projection should be understood as a working hypothesis. Its main purpose here is to illustrate how population dynamics interact with the occupation of space. Switzerland currently hosts around three dozen wolf packs (purple circles), but based on this projection, the country could eventually support at least twice that number (purple and orange circles combined) (see Fig. 2). It is unrealistic, however, to believe that this population can continue to grow and densify indefinitely. In fact, the territory will reach saturation more quickly if regulatory interventions are avoided.

So, what does this have to do with demography? If we accept that Switzerland already hosts roughly half the wolf population projected at ecological equilibrium (carrying capacity *K*, see Fig. 3), it follows that the growth rate observed in recent years was bound to decline—regardless of whether culling was implemented. This is largely due to competition among packs for access to game, the primary food resource for wolves. This natural phenomenon is known as density-dependent regulation, and it affects all animal populations. Thus, when political leaders (whether in government or parliament) speak repeatedly of "uncontrolled exponential growth," they are primarily demonstrating a lack of understanding of animal population dynamics. In reality, wolf population growth follows a logistic model, not an exponential one[11]. Driven by this misunderstanding, policymakers triggered a wave of unnecessary panic, even accelerating the development of a revised hunting law (LChP).

Unfortunately, the law is riddled with outdated assumptions, relying more on so-called common sense (i.e., intuition not grounded in data) than on scientific evidence. This kind of posture (frequently adopted by certain uninhibited politicians) is increasingly eroding trust in democratic institutions, particularly when it comes to environmental issues. Too often, decisions are based on belief rather than on well-established scientific knowledge. Unsurprisingly, a growing segment of the public is becoming disillusioned with this political elite - because ordinary citizens are not as easily misled as some assume. Let us be clear, once and for all: the dynamics of wildlife populations are not governed by exponential functions, but by logistic growth. If exponential growth truly applied, with an observed annual growth rate of 31.5% (a verified figure), Switzerland would have 31,500 wolves by 2040 and 488,000 by 2050. *Quod erat demonstrandum*.

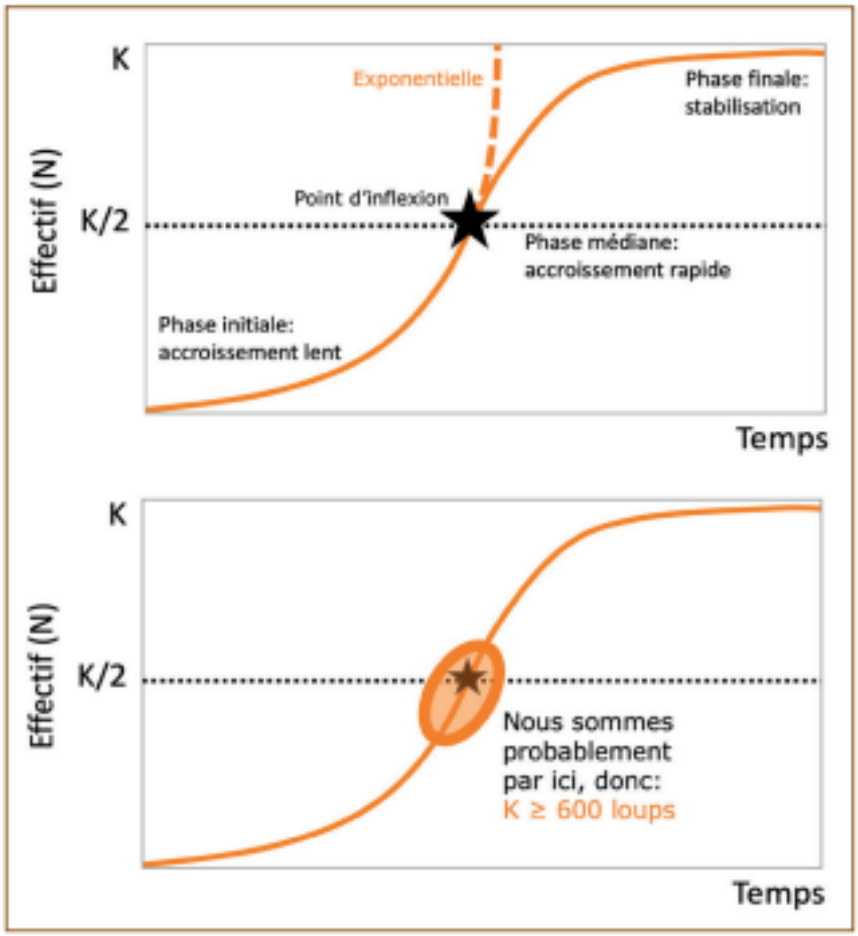

Fig. 3: Top: Logistic growth model of an animal population.
Based on the scenario in Fig. 2 : The Swiss wolf population, with around 300 wolves, is currently close to the K/2 value, i.e., in a phase where annual population growth is at its peak (steepest slope, just before the inflection point). The equilibrium population size, i.e., once the carrying capacity K has been reached, could therefore reach around 600 individuals. Low: Poorly implemented regulation, of comparable or greater intensity than is currently practiced, which would succeed in maintaining the population at this size, would mainly contribute to boosting reproduction. In general, intervening in the population at this stage is particularly ineffective and inefficient, in terms of demographics and in terms of human and financial effort.

Figure 3 illustrates the difference between exponential and logistic growth models**.** As shown in the graph, the current phase of proactive regulation coincides with the steepest part of the logistic curve (where the growth rate is at its highest). Had regulation been delayed by a few more years, it would have been possible to identify the inflection point of the logistic trajectory more precisely. This point - at *K/2*, where the annual growth rate begins to decline - would have allowed for a clearer estimate of the population's equilibrium size, since the carrying capacity *K* is, by definition, twice that value. Nevertheless, the spatial projection suggests that by 2023, we were likely already approaching the *K/2* threshold.

So how does the current policy of proactive regulation fit within this spatial-demographic perspective? Paradoxically, if regulation continues along its current trajectory, it will primarily serve to *prolong* the phase in which the population maintains its naturally high reproductive rate. This happens because the policy delays the onset of density-dependent regulation - a process that only truly begins once the population surpasses *K/2*, or half of the projected equilibrium population (*K*). Density-dependent regulation arises from competition between wolf packs, as well as among individuals within each pack. It reduces reproductive rates and increases mortality. Like all animal populations, wolves are governed by these natural mechanisms. In short, continuing with proactive regulation as it is currently implemented will, from a demographic standpoint, mainly serve to stimulate reproduction without achieving population stabilization. In other words, it will keep the wolf population locked in its phase of maximum demographic productivity - what ecologists refer to as the *maximum sustainable yield*. The corollary: year after year, we will need to invest enormous financial and human resources to maintain the intensity of lethal control measures - resources that will merely serve to offset the increase in fertility that those very measures help to provoke. It's a classic case of the snake eating its own tail.

So, what comes next? Predicting the outcome is difficult, as it ultimately depends on whether our political leaders fully grasp the underlying dynamics. If they come to realize that current regulation measures are failing to deliver the expected results - but remain entrenched in misunderstanding - they may react by intensifying culling efforts. This would only trigger an even stronger reproductive response in the wolf population, exacerbating the situation despite the enormous costs such a policy would entail. Conversely, if decision-makers begin to listen to science, they could adopt a different strategy—one that works *with* ecological reality rather than against the powerful demographic resilience of wolves. Indeed, wolves are highly adaptable and capable of rapidly adjusting their reproductive rates to compensate for losses.

Another harmful consequence of the current regulatory shootings is their disruptive impact on the social structure of wolf packs. By removing individuals more or less at random - many of whom, as we've seen, did not even belong to the targeted pack - these operations destabilize established pack dynamics, triggering an intense effort to reconstitute social cohesion. This disruption can, in turn, lead to new problems, whereas stable, unregulated packs had often achieved a functional equilibrium that allowed for a rational use of territory and more effective management of their ungulate prey populations.

Another significant downside of the current regulatory shootings is their disruptive effect on pack cohesion. By removing individuals almost indiscriminately (many of whom, as we've seen, do not even belong to the targeted pack) the social structure is destabilized, prompting a scramble to reestablish hierarchy. This disruption often results in the loss of experienced leadership and the erosion of valuable ecological knowledge held by long-standing adult members.

This situation closely parallels past fox-hunting policies. Foxes are the second most hunted species in Switzerland, with between 28,000 and 35,000 killed each year. Yet foxes play a crucial ecological role: they help control rodent populations (particularly voles) which in turn reduces the spread of zoonotic diseases like Lyme disease and tick-borne encephalitis. Despite causing only minor nuisances, foxes are subjected to relentless persecution, and their meat is not even utilized, ending up in rendering plants. Nonetheless, fox populations continue to thrive, especially in urban areas where hunting is prohibited. While wolves are far more socially complex than foxes, the same unintended consequence is likely: current regulatory efforts will fail to stabilize wolf numbers. Instead, wolf populations will continue to grow, inevitably pushing toward the ecological carrying capacity (*K*) of their environment.

Footnotes

10. Roder, S., et al. 2020. *Deer density drives habitat use of establishing wolves in the Western European Alps*. Journal of Applied Ecology, 57: 995–1008. https://is.gd/YfYOBJ

11) Arlettaz, R. & I. Germanier. 2023. L'incertaine expérience Rösti.
Fauna.vs info 44: 8-9. https://is.gd/t6cWjs

2. Educational Impact?

The stated primary goal of Switzerland's proactive wolf regulation strategy (implemented over the past three years) has been to "educate" or "condition" wolves by discouraging them from approaching livestock and humans. The theory goes that this would reduce predation and restore a healthy fear of humans, thereby lessening problematic encounters.

This rationale has been repeatedly emphasized by political leaders, especially at the federal level. However, a significant number of wolves killed through proactive measures were not actually involved in any recorded predation. So how can we speak of an "educational" effect? It's akin to trying to discipline a classroom by randomly punishing students, rather than addressing the real troublemakers (who might never even be identified). As an educational strategy, this leaves much to be desired.

3. Spatio-Genetic Monitoring of Packs

The exact locations of regulatory shootings from the 2023–2024 season clearly show that many errors occurred in identifying buffer zones on the edges of known pack territories. This was particularly evident in Val d'Hérens, Entremont, and the Pennine Alps between Brig and Anniviers. These cases reveal a flawed spatial understanding of wolf dynamics in Valais. Despite this, the SCPF continues to draw pack territories with surprising precision when communicating or submitting culling requests, even though pack ranges are naturally fluid and change over time. Moreover, several packs have either been inadequately or not at all genetically monitored: no genetic samples have been collected or analyzed over three years for the Hauts-Forts pack, and data is sparse for the Toules, Mont-Brun, and Ferpècle-Arolla packs. This severely limits our ability to accurately map their territories and conduct targeted, informed regulation. To refine and improve regulatory efforts, the following measures are essential: 1) Improve spatial monitoring using camera traps to more accurately define pack ranges and activity zones; 2) Increase genetic sampling in under-monitored regions to identify individual wolves and verify pack composition; 3) Enhance data interpretation, not only within the SCPF but also by oversight agencies such as KORA and FOEN, which have recently approved several questionable requests without visible scrutiny; 4) Narrow shooting perimeters, focusing only on the known core territory of the pack. Avoid peripheral buffer zones that are often frequented by neighboring packs. Without a more rigorous and informed approach, regulatory efforts will remain arbitrary, leading to the killing of individuals who have caused no harm. This approach is neither selective nor educationally effective.

4. Justification and Implementation of Culling

The SCPF's current regulation strategy suffers from a lack of coherence and credibility. In some cases, full pack removal was authorized despite minimal predation in protected areas. For instance, Hérens-Mandelon and Nendaz-Isérables were approved for full culling in 2024 following just a single reported incident. In contrast, packs responsible for significant levels of protected-area predation were left untouched. This inconsistency undermines public trust in the state's ability to manage wolves effectively in Valais. Furthermore, it is unacceptable to initiate proactive regulation targeting potential breeders before the end of October in packs known to have reproduced that same year. Such actions likely violate Switzerland's Animal Welfare Act. It also distorts the data and leads to unjustified and poorly targeted regulatory actions.

Photo : Breeding female Ferpècle-Arolla pack (Wolf Mission)

Conclusion

Analysis of the wolf regulation operations conducted since December 2023 in Valais reveals the following:

1) Livestock depredations declined between 2023 and 2024, but it is impossible to determine whether this resulted from improved herd protection or the effect of regulatory culling. It will take several more years of consistent data to begin clarifying the causes of this trend. Even then, the analysis will remain correlative rather than causal, as no proper scientific control or experimental protocol was established prior to the interventions.

2) Livestock protection measures are clearly effective, as demonstrated by the recorded losses in Upper Valais, which accounted for 62% of all depredations in 2023 and 78% in 2024—despite the region hosting only three wolf packs. In contrast, Lower Valais, with three times as many packs (nine in total), experienced significantly fewer losses. This disparity is largely due to the differing levels of protection: in Upper Valais, measures often consist solely of electrified fencing, whereas in Lower Valais, such fencing is frequently combined with livestock guardian dogs. The combination of shepherd, electrified fencing, and guardian dog remains the most effective strategy, with very few losses reported under these conditions.

3) During the first preventive regulation campaign, at least 40% of the adults and 35% of the pups shot did not belong to the targeted pack. In the second campaign, at least 28% of the adults killed were from outside the intended pack, while only 22% were confirmed members. For the second phase, data on pups can no longer be analyzed, as the SCPF has stopped providing the exact locations of the shootings.

4) Under the current regulation framework, achieving population stabilization—or even reduction—is an illusion, despite the intensity of lethal control measures. The core issue is that too few individuals from the reproductive segment are being removed—only about 10–12%. As a result, the wolf population is expected to continue growing, albeit at a slower pace, as it moves toward its natural equilibrium (carrying capacity, K).

5) Despite being implemented across a large portion of Valais for five months (proactive regulation, from September to January) and up to eight months when including so-called reactive regulation (June to August), wolf culling has failed to reverse the overall population trend. Of the seven breeding males shot across six packs (four in 2023–2024 and three in 2024–2025, including reactive measures), nearly half were replaced within a few months. Notably, no breeding females have been killed to date.

6) The rate of lethal removals will actually increase the reproduction rate, as it primarily prolongs the phase during which the population experiences its highest intrinsic annual growth rate—around half the carrying capacity (K/2), corresponding to the Maximum Sustainable Yield (see Fig. 3).

7) The social disruption of packs constitutes an additional, non-quantitative disturbance whose effects remain uncertain. Subordinate wolves—typically less experienced than the removed breeders—are ready to step in, as reflected by the high replacement rate, which could potentially lead to new challenges in managing depredations.

8) In an effort (so it seems) to counteract the increased reproductive output and social disruption caused by regulation, the manager may be inclined to further escalate lethal removals. However, this would likely only exacerbate the problem, particularly if the rate of removal within the reproductive segment remains inadequate.

9) The authorities face a clear dilemma:

a. They may be tempted to escalate lethal removals, which would demand a significantly greater (and likely disproportionate) investment of manpower and funding[12], while yielding diminishing returns in both effectiveness and efficiency.

b. Alternatively, if the authorities i) enhances monitoring through improved use of camera traps and genetic sampling, ii) refine the quality of its statistics and reporting, iii) rely on expert interpretation of the data, and iv) incorporate demographic model predictions into decision-making, then regulation efforts could be optimized, potentially achieving the desired educational effect.

However, based on current outcomes, this educational effect remains illusory in Valais due to excessive untargeted killings. “Regulation” is a somewhat inflated term for what effectively amounts to a blindfolded witch hunt. The only realistic impact to expect is numerical - and even in this regard, current regulation efforts fall short (see points 3 to 6 above).

Footnote

12) Valais hunters were financially compensated a total of CHF 88,000 for their participation in the 2024-2025 regulation efforts, in addition to the intensive involvement of full-time and auxiliary wardens. For comparison, the State of Valais paid CHF 45,000 in damages caused by wolves.

Achieving a more harmonious long-term coexistence with wolves will require a fundamental shift in management approach. Our reflections on the relevance, effectiveness, and efficiency of the measures implemented largely apply, with some nuances, to other populations subject to federal regulation standards, especially in other Alpine cantons.

In 2024, several organizations (Pro Natura, Groupe Loup Suisse, fauna•vs) proposed the creation of a dedicated “wolf task force” to the Valais government. This proposal was rejected by State Councillor Frédéric Favre. The establishment of such a unit (already in place in several other cantons) could have helped avoid many of the pitfalls outlined here, thanks notably to data collection beyond governmental spheres, more nuanced interpretation of available information, and access to advanced scientific expertise. It would also have helped restore public trust, which has been shaken by the numerous dysfunctions revealed, some of which are discussed in this article.

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