

Platform Workshop 21.-23.Oktober 2009 Triesen FL „  
Large Carnivores and wild ungulates“

**Living with large carnivores and wild  
ungulates in a changing ecological,  
economical and socio-cultural  
environment**

Mario F.Broggi

## Preliminary remarks

I would like to begin with two preliminary comments.

1. I am not an expert on large carnivores. In recent years, I have been working on research management in the field of land use and nature preservation. You may know the saying: “It’s easy to find researchers who search, but researchers who actually find are searched for”.  
Another saying goes: “Scientists are inclined to making measurements and reaching average values with a statistical variance”. There is something true about this, as research excellence is often measured on the basis of peer-reviewed papers and the citation index, while inter- and transdisciplinary work is only marginally appreciated. In my professional life, I have been trying not to go too deep into subjects - which is also important – and I have been trying to work with a solution-oriented, technical and transdisciplinary approach. This is why I see myself as someone who works within an “eco-broadband” and it is from this perspective that I will be discussing today’s topic.
2. In preparing this presentation, I first wanted to get acquainted with the topic, so I used the search engine Google to look for information on the specific species:  
The keyword “wolf” gave 114 million hits, “bear” 16 million and “lynx” half a million. Similarly, the word “deer” gave 12,5 million hits and “roe” 3,5 million.

So you may wonder what else can be said on these animals that has not been written yet. In 2001, when I worked with the WSL, we also published a topical insert on “Man and predators in Europe” in the journal “Forest, Snow and Landscape research”. It is clear though, that there are still conflicts about these species - otherwise your platform would not be necessary.

A newspaper article taken from the “Neuen Zürcher Zeitung” of September 29<sup>th</sup> 2009 on the “Rocky Mountains wolf hunt” – which has recently been authorised again – shows the current extent of the issue. I have extracted these key passages:

⇒ “Since ancient times, the wolf is the symbol of the ambivalent relationship that man has with nature”, although – by the way – this does not apply to indigenous people.

⇒ “The wolf is an unnecessary, desolate beast”, once said US president Teddy Roosevelt.

⇒ “It is not acceptable, warn today rancher associations, that the interests of “art-loving city dwellers” are taken into higher account than those of farmers”.

I assume that today the matter is not really the lack of biological-ecological knowledge on these animals, but rather their acceptance. As a consequence, it is a matter of values in our society.

And this concerns also the reed deer. His trophies on the head are the expression of their importances. The greatness of the trophy has more importance than the status of the environment.

.

On this issue, there are very clear and contrasting opinions and these seem difficult to shake. This reminds me of the saying that goes: “I have made up my mind, please do not confuse me with facts”.

In preparing this presentation I decided to leave aside the literature research and asked myself: what is the problem and what do I want and can tell them about it?

While illustrating my thoughts I will often be making reference to the example of the wolf, as he particularly exacerbates feelings of liking or dislike. I would also like to remind you of the three recent shooting authorizations passed in Switzerland, in the Wallis and Luzern cantons.

### **Attempt to illustrate the problem in the framework of the sustainability triangle**

In trying to organise my thoughts, I have come up with ecological, economic and social keywords; I have then tried to cluster them, and have thus ended up with the sustainability triangle. I will remind you here of one of the many definitions of sustainability:

*“Sustainable development meets current needs without narrowing the possibility for future generations to satisfy their own needs”.*

This is first of all an abstract construct, but since the Rio Conference in 1992 the concept of sustainability has been excessively used and misused. All stakeholders metaphorically pull back to their corner of the tablecloth at the round table, fight for their specific individual desires and even call this sustainable.

In the following analysis of the topic of my presentation, I will try to follow the “sustainability triangle”. I will present a few thoughts on this before drawing seven conclusions. I warn you in advance that the social issue will be at the core of my presentation, not ecology.

### **Ecological considerations**

First, let's have a look at the legal facts related to the protection of these species:

*Ursus arctos*, *Canis lupus* and *Lynx lynx* are species of common interest, according to Annex II, and species that need strong protection according to Annex IV of the Flora Fauna Habitat directive (FFH) of the EU (1992); they are strongly protected species according to Annex II of the Washington Agreement on the Protection of Species (1973), as well as according to the Bern Convention (1979) and Annex A of EU regulation 338/97 (1998).

So they are “strongly protected” in many ways through international conventions and European agreements. This clearly shows a value orientation which enjoys a wide socio-political support in Europe.

All three animal species had not survived the 19<sup>th</sup> century in Central Europe - if we do not take into account the marginal bear population in Trento.

Through reintroduction or natural migration, they have come back to a world that is very different from what it was 100 or 150 years ago.

They come into contact with an Alpine environment which on the one hand has significantly larger forested areas (see the pictures) and more food resources than in

the past, when – for instance – the deer had disappeared and the roe had become very rare in some specific regions.

But the Big Three are also coming back to an environment that, generally speaking, is much more densely populated and equipped with much more infrastructure, so that potentially suitable habitats have become isolated and fragmented.

They are coming back to a world where their protection first, and then Wild Animal Management, are seen as social tasks. This of course requires that the whole social setting is taken into account. We can no longer get rid of these predators by poisoning them with strychnine, using traps and especially bullets as a sort of “lethal deterrents”. This would no longer be appreciated by the majority of Europeans.

It can also be postulated that feeding resources provided by Mother Nature are available in sufficient amounts for all regulators – both animals and man.

From an environmental point of view, I can see the following:

- they are Keystone Species in the food pyramid and are regulators that man – due to the inability to carry out certain temporal activities– can hardly replace in the food chain (think of the well known woodland-wild animals problem in some parts of the alps). The current knowledge available in Central Europe on the interrelation between large predators and today’s given environment is far from being adequate, but the return of these animals gives us the opportunity to learn more on this topic.
- As Flag Species they highlight the need to preserve large areas that have suffered little interference, and which should be connected by corridors. These aspects are acquiring more and more relevance for the safeguard of biodiversity and represent a big multidisciplinary challenge, as our administrative “kingdoms” are not suited to tackle these issues. This will be a big challenge for all of us.

The given legal protection of predators also requires the setting up of a monitoring mechanism and the development of management measures to make sure that it is implemented. I will come back to this point later in my conclusions.

Beside this ecological considerations concerning the predators I have to add that big populations of ungulates will pass the capacity of environment and will create ecological damages. This will be the result of overusing the vegetation and their composition. The change of the natural composition of trees will also change our landscape aspect.

I will conclude my thoughts on the “Ecology” aspect of sustainability as follows:

For the purpose of environmental protection we manage to even bring straightened rivers back to their winding shape – admittedly to a very limited extent, but still. This is a significant step forward towards nature, but it is a quite expensive one. Even “rich” Alpine countries clearly encounter difficulties in finding the right approach to large predators and a free migration of big animals, although – as you know - this does not prevent us from vehemently campaigning in poor India for the protection of the tiger.

So this is what I wanted to say about ecology. I would just like to mention a statement by a politician from Wallis who said “today ecology is taken too far” and he is not the only one to share this thought in the context of our discussion.

## The social aspects

I would like to illustrate firstly the hypothesis that behind “bear, wolf and lynx” there are other issues, which have less directly to do with these carnivores.

I am referring to withdrawal reflexes in mountain areas. These may be felt against a perceived or real centralism – that is to say against Brussels, Rome, Paris, Berlin, Bern, Vaduz, Vienna and Ljubljana, where all the “bad” comes from. Or it may be that people feel tricked by the legislation that comes from the capital, from the “imperialism of industrial and service districts”. It is likely that the rejection of wolf, bear and lynx is also based on a deeply rooted idea of the enemy, and the fight against “all that comes from outside” and against “heteronomy” (in German “Fremdbestimmung”).

Wolf, bear and lynx are symbols of the “wildness” that jeopardizes the process of civilisation. All this has to do with judgements and the definition of values related to land. In the past, everything was exploited for the purpose of self sufficiency. Can the intolerance we often see against what is not used, against what is not well groomed be explained in terms of past hardships? Or is this merely an “archaic” fear of the “wild”?

The idea of the “wild” can be explained particularly clearly in connection with the idea of the “forest”. If we look at the medieval social order, which was reorganised on the basis of new feudal and religious institutions, forests were “foris” – outside such social order. There lived outcasts, robbers, lepers, hermits, fugitives, outsiders – let’s just think of Robin Hood’s Sherwood Forest. If you lived outside the law and outside human society, you would soon find yourself in the woods. Although it is also a living space, the forest is the contrary of a place governed by order and which nobody should fear. In between runs the boundary between “culture” and “nature”. On the one hand there is the “Christian” Garden of Eden, on the other there is the “devilish” wilderness. We find many such references also in fairy tales: it is not by chance that in 1887 the Grimm brothers described the wolf as the “most evil of all animals”.

The “domestication” of nature becomes an important cultural achievement. By the way, the idyllic “Arcadia” mentioned by Theocritus or Virgil, as well as by Baroque poets who write of plump shepherdesses who hop of meadows, is always depicted as a grove and not as a thick forest. It is reckoned that this may be an indication that our roots come from the African savannah.

The early American advocates of the idea of “wilderness” – from Henry David Thoreau to Aldo Leopold – interpreted their emphasis on wilderness as a “rejection of man’s arrogance”. They consequently campaigned for the creation of “wilderness areas”, which European laws do not really envisage as such (they would fall into Category I of the IUCN criteria). In Central Europe, it is clear that even large protected areas are first considered as “our” land, as land owned by man, where – in the core region – selected predators can live as “guests”, if they behave in a somewhat decent manner. So, with the help of “wilderness advocates”, the antagonism between wilderness and domesticated nature is reflected in our society.

The WSL research institute – on the basis of in-depth interviews – has identified three types of individuals with different stances towards the wolf:

- ⇒ The traditional wolf enemy (rural, moralising, pragmatic approach)
- ⇒ The post-modern wolf supporter
- ⇒ The ambivalent wolf supporter

⇒ The “*tradition-oriented wolf enemy*”: these individuals perceive the wolf as a symbol of the wildness that continuously expands, thus jeopardising the processes of civilisation and farming, as well as traditional values. They reject the presence of the wolf.

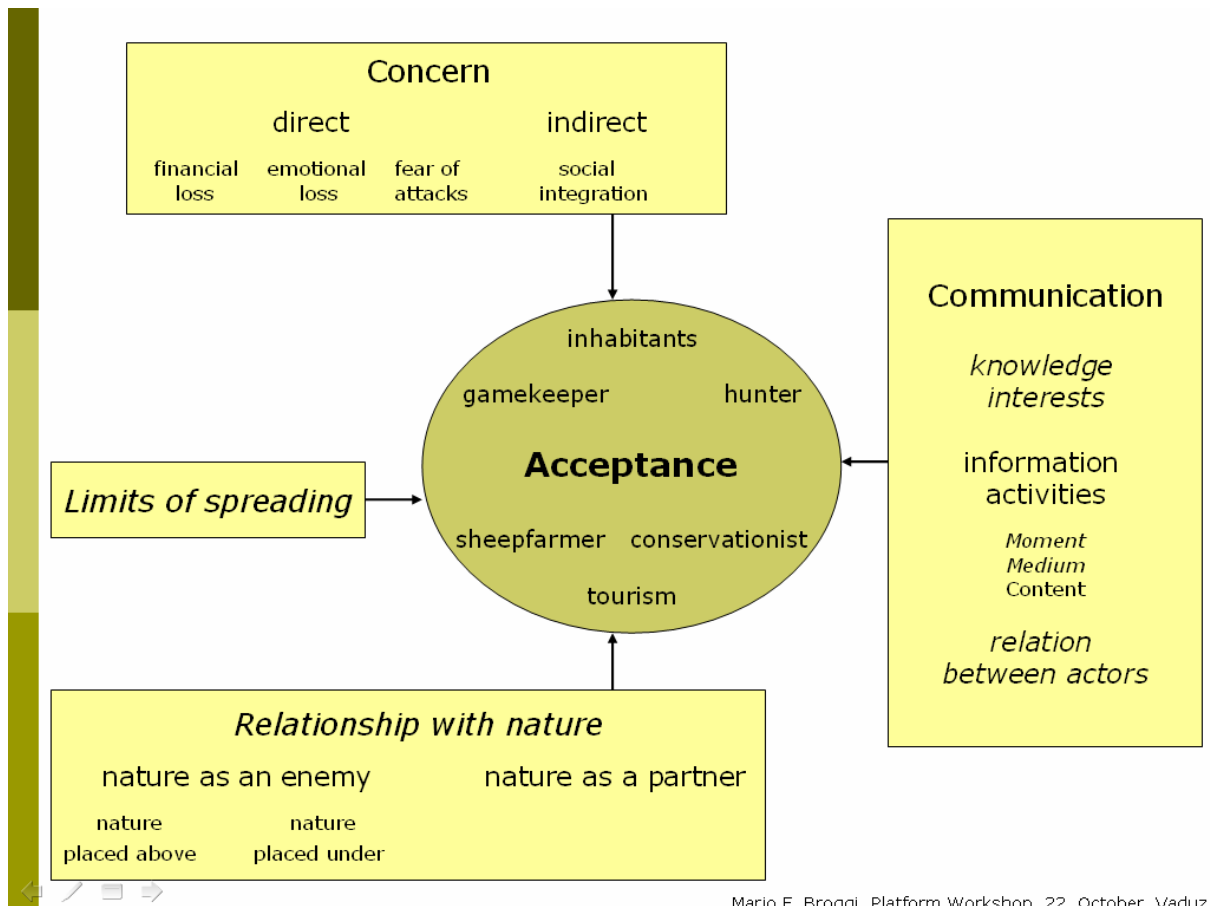
⇒ The “*post-modern wolf advocate*” sees the wolf as a dynamic fighter who can overcome adversities. The wolf symbolises the resistance against civilisation, perceived as destructive. The presence of wolves is strongly advocated, even when this is linked with problems. Those who generally support the expansion of spontaneous nature – wilderness – feel that the proliferation of predators is also good. There is some new literature that embraces this approach and teaches us what “wild” animals” can tell us as representatives of wilderness – seen as life wisdom.

⇒ The “*ambivalent wolf advocate*” sees the wolf as a pack animal within a community as well as an individual fighter and therefore as the symbol of oneself, positioned between traditional values and the search for new, personal value systems. The presence of wolves is generally supported, but is seen as unreliable. In case of practical problems, such as the mass killing of farm animals or social pressure, this third group of people would go back to traditional values.

Concerning the ungulates we know on the one hand the “Bambi”-myth, on the other side in spite of the enormous economical damages in forests their well reputation. The annual trophy-exhibition (Trophäenschau) establish the hunters even the aura of a hero.

### **Acceptance, its influencing factors and their relationship with each other**

In interviews, most of the population in Central Europe supports the presence of wolves, bears and lynxes and of course the ungulates. In rural areas, often the majority of people reject the predators. The longer the tradition of coexistence with large predators has disappeared – without building a new tradition – the higher the number of those who are against the presence of these animals. The difficulty of building a new tradition has become clear in the case of the Lausitz wolves in East Germany.



Mario F. Broggi, Platform Workshop, 22. October, Vaduz

According to Caluori et al. (2000): *Der Wolf–Wildtier oder wildes Tier! Deutungsmusteranalyse in der Schweizer Bevölkerung*, Uni Bern

The acceptance of wolves and other predators depends on several factors. The factors that influence acceptance and the relationships they have with each other are shown in this representation of the WSL. Arrows represent the effect of a factor on acceptance. The weight of individual factors in influencing acceptance is not illustrated here. An important acceptance influencing factor is the concern of an individual. Here we can make a distinction between direct and indirect concerns.

Financial and emotional loss or the fear of attacks against people lead to direct concern. The reasons behind indirect concern are somewhat subtler. The social integration of an individual in his or her current environment has a great influence on the stance towards large regulators. Imagine you are sitting at a table with other people: in such a situation you can feel social pressure and you want to belong to the group gathered around the table. This issue is also relevant in terms of political profiles in rural areas.

The feeling of threat is a second aspect of concern, be it real – such in the case of a sheep farmer – or imaginary, as generated by fairy tales or mythology where the wolf is often a bloodthirsty beast. Loss is a third important aspect: it can be financial loss, due to killed or severely injured animals, or emotional loss, when it comes to breeding animals. Emotional loss plays a more significant role than economic loss.

Finally, knowledge on large regulators and the existing relationship with nature, as already mentioned, play a significant role.

## **The problem of the presence of large regulators: the example of wolves**

### Animal husbandry

When it comes to wolves, the biggest problems are related to animal husbandry, hunting and tourism.

For instance, advocates of small animal husbandry are convinced that wolves and sheep or goats cannot coexist, for the following reasons:

⇒ The usual practices of sheep and goat husbandry, with a summer grazing period spent by animals in the Alps, with little supervision, originated in the absence of large predators. Many people also own a little plot where they keep a few animals on a continuous grazing regime.

⇒ Meat production is not always the main activity: often breeding is the most important activity and this creates a strong emotional bond (key words: Eringer beef, Raetian grey cow, black nosed sheep, Stiefelgeissen goats).

⇒ Sheep husbandry, from the point of view of farmers, contributes significantly to landscape preservation, preventing a further overgrowth.

The biggest and – with the current grazing regime – unsolvable problem are the unmonitored flocks of sheep in the Alps or on other pastures, where they are kept for continuous grazing. This is an irresistible attraction for large regulators and they would fail their job if they did not attack. In Wallis alone 60,000 sheep and 6,000 goats graze. Out of these, about 13,000 belong to the population of the “black nose”. According to ecologists, the large number of Alpine sheep has a negative impact on the vegetation – again, this leads to clashing opinions among sheep owners.

How can we solve or at least mitigate the problem? We must take inspiration from experiences in former wolf areas in Spain and Italy. There, farmers consider wolves as a “natural” presence. Also, they have always been forced to apply protection measures. As countermeasures, the use of guard dogs and herdsman, fences, compensation payments and – as a last resort – the shooting of so-called problematic animals are currently being discussed. Shooting problematic animals though is always very difficult, or may lead to killing the wrong animal - as in the case of the tame bear “Petzi” who was shot in Upper Austria instead of the huge “Nurmi” in 1994.

From an environmental point of view, the use of herdsman and dogs is seen as a possible solution, but an adequate management of such a system is often considered by sheep owners as unfeasible and too expensive.

### Hunting

The return of predators contributes to the creation of healthy and strong prey populations, as they eliminate ill and weak individuals. On the long term, the number of preys determines the population of regulators, as this has often been demonstrated. Nevertheless, many hunters are not ready to share their loot with wolves, although in some areas the populations of wild animals are so large that a future “sharing” would be desirable.

Often more animals are killed than those that a wolf can actually eat. This seems to be the most difficult issue when discussing the return of wolf packs. Mass killings take place when panic breaks out among domestic animals, as quick movements of preys



are interpreted by the wolf as a signal to attack and capture. The killing is therefore caused by a key signal and is not determined by hunger. Large numbers of dead sheep are left lying around and this particularly angers sheep owners.

The “beast” of Val Ferret in the Wallis canton, which killed around 100 animals, caused irrational reactions in 1995, when the Wallis government decided that “wolves do not have the right to live in Wallis. Their physical presence would require the approval of authorities, which has not been given”. The state council of Wallis thus expressed a clear ban on wolf entry.

I still consider the problems linked to hunting as easier to solve than those related to farming or small animal husbandry. The statements approved by the committee led by FACE (the coalition of hunting associations in the EU) on the preservation and management of large predators seems to me to be somewhat moderate in their implementation. Anyway, on-site behaviours and reactions to possible cases of illegal poaching are decisive.

### Tourism

Often the question of safety in touristic areas is posed. Over time, discussions have become more objective. Bears are particularly liked here. On April 14<sup>th</sup> 2008 the bear “JJ3” was killed in Bündnerland, as he was considered as not very shy, he entered inhabited areas and therefore was judged as a safety risk. The irrationality of tourists became clear also in 2005 in the case of “Bruno”, when tourists went as close as 5 meters from the animal in order to take good pictures.

The possibility for tourism to profit from the presence of animals that are rarely seen is a controversial issue. Contrary to this belief, there is an established wolf tourism in the Abruzzo region, and also in the National Park of Mercantour wolf-related tourism should increase. In North America, wolf watching is a strong touristic attraction.

### Economic aspects

#### Compensation for killing incidents

For animal husbandmen each single animal is a loss. It becomes an even bigger loss if it is a breeding animal. Since 1998, the Federation and the cantons in Switzerland have adopted a compensation system for victims of lynxes. Small animal husbandmen have the obligation to demonstrate the incident. Recent killings can usually be handled easily, while in case of older incidents or disappeared animals this is more difficult and sometimes impossible. In case of doubts, a halved compensation or no compensation is usually provided. Today, these compensations are generally known by the interested parties and their amounts are considered as barely sufficient – with the exception of breeding animals. More fairness in indemnities seems appropriate.

#### Changes in subsidies

The previously dominating agricultural policy mainly promoted large scale agriculture rather than mountain farming. In the EU, per-head premiums for small domestic husbandry without further requirements proved to be particularly catastrophic from an environmental perspective – I have seen this on Greek islands. The vegetation has been eaten up by excessively large flocks and this has worsened soil erosion. This system of per-head premiums has now been abandoned in the EU.

In Switzerland, the summer grazing area – with about 7,500 businesses and a surface of 500,000 ha – is not classed as agricultural land and obtains 4% of available direct payments. These are about 100 million Swiss francs. The amount is decided on the basis of the normal earning capacity determined by the canton. Summering contributions are assigned independently of actual performances or of the ecological potential and until now they have also been assigned to sheep flocks with no herdsman.

Currently the Swiss Alps are tended by about 12,000 Alpine herdsmen and women. Grazing systems subject to compensations are connected to a management plan. Since the current year, the constant presence of a herdsman allows to obtain 270% of summering contributions for continuous grazing systems. In this way, the desire to leave sheep unattended is reduced and hiring a shepherd becomes more attractive. This is a very important complementary measure. The new regulation contains strict requirements in terms of implementation.

An exemplary Alpine concept should also take into account the reintroduction of large regulators and the consequent conflicts, as well as discuss possible solutions. A significant increase of contributions, in the framework of controlled conditions, would be appropriate.

A couple of comments on wild ungulates

According to the presentation title, I should also be saying something about wild ungulates. I shall limit myself to a few explicitly subjective comments on the following visionary – although not utopian – aspects, with reference to the flagship species of the red deer.

*A* I think we should develop a specific ethics of wild animals and respect it as such. I believe we should abandon all “caring” approaches, as if they were zoo animals. I am therefore against all symptomatic measures, such as winter fencing and winter feeding. On the medium term, such systems will have to be reemployed. Appropriate solutions must be based on the improvement of the habitats of these animals.

*B* Improvement of the habitat means that we should make it possible for animals which originally migrated to a specific area to do so again on a long-term basis. I remember I have read that the red deer once migrated to the Isarau area, at the doors of Munich. By eliminating the existing fragmentation, it should be attempted to make this possible again on the long term. A similar measure that falls into this area of action is the earmarking of protected areas - which we should require ensuring a certain “symmetry” in the sacrifices that all interested parties will have to make. Similarly, great habitat improvements can be achieved through the preservation of forest meadows, wood edges and revitalised streams. Agricultural policies – through performance-linked rewards for farmers – and forestry must also contribute to this. I will talk later in my conclusions about the “kingdoms” of decision makers.

## Conclusions

I am going to summarise my conclusions in seven points:

### 1. We need a land ethics

It is striking that indigenous people never say that the soil, and therefore nature, belongs to them. Usually they exploit the “fruits” of the land. And now the Penang in Borneo must painstakingly demonstrate that they already lived in that area a hundred years ago. Indigenous people also have no troubled relationship with large predators – quite the opposite. This is true even today for the Abruzzo shepherds and bears and wolves. Roman law gave us rights but also duties in terms of land ownership. We, in the valley of the Alpenrhein, obsessed for a thousand year about the “common land”, the common ownership which was abolished over 150 years ago. In our money-driven world, what have survived are mainly the rights – not the duties – and this is the way we approach land and nature. The amount of land cannot be increased, but we behave as if this was possible. Our entire society behaves possessively, also game tenants on a hunting ground – and not always to the benefit of wilderness. By paying rent fees, they obtain an alleged right and defend it. In this context border crossings, which I mentioned in relation to animal migrations, are seen as an abomination. In brief: we need back a land and nature ethics.

### 2. Long-term environmental education

The personal existing relationship with nature can hardly be influenced on the short term. In the field of environmental protection, many believe that factual arguments are more important than emotions. I no longer share this view. Emotional arguments related to environmental protection are convincing, as they are genuine and need no further explanation. But we must also accept that some people feel that material well-being is more important than the conservation of territorial diversity and will go to all lengths to attain it. I personally believe that by making permanent damages to the environment we also destroy something in ourselves. It would be desirable to have a set of reference values taken from several sources, such as – in my opinion – ethics, the reverence towards God’s creation, the negation of the right to eliminate other beings. Investments in environmental education are therefore good investments.

### 3. Elimination of communication problems

There are significant communication problems among stakeholders, as well as a lot of mistrust. Interested parties often feel they are not taken seriously, they feel they are left in difficulties or treated unfairly from the top. People do not really trust and believe in each other. For instance, there are still rumours according to which wolves in Wallis have been intentionally introduced. Breaking these strong barriers and starting a constructive dialogue will not be an easy task. We need to analyse how the factors that hinder acceptance work in specific contexts. The question of predators should not be tackled in an isolated manner, as it involves issues that relate to the environmentally friendly exploitation of the Alps and landscape maintenance. It is important to take seriously the opinions, fears and statements of animal keepers, hunters and those who work in tourism and try to meet their needs. Conflict issues

must be highlighted and discussed. In this way, an information campaign will not be superfluous, and would contribute to the search for a solution that can be accepted by everyone.

Public relations work is made difficult by the fact that many have already developed their opinion. It will be very important to hold personal dialogues on site and to promote the creation of contact groups, with representatives of citizens, researchers and institutions. It is necessary to look for long term solutions for issues such as how to integrate large regulators in the framework of nature, as former enemies.

#### 4. Negotiation of management plans

The understanding of appropriate measures for the preservation of species diversity requires a change. In the first half of the last century, the extinction of endangered animal and plant species led to the strengthening of species protection actions based on interminable lists of protected species. Many environmental laws are still characterised by this approach, for instance the Bern Convention. The endangerment of habitats, the reduction of diversity and fragmentation have led to a change in environmental protection. Human interests are strictly linked to biological diversity by man's uses of nature. This is why efforts are becoming more and more pragmatic and adapted to different localities. The goal of measures is the conservation of large predators, not just their strong protection.

The threshold of large regulators acceptance must be continuously re-negotiated.

Management plans should contain goals which take into account both the habitat and the conflicts with local uses of nature.

Management strategies must be limited in time and space, in order to allow for an adequate flexibility. Management plans based merely on biological considerations and overlook social issues are doomed to failure. Negotiations therefore require a sort of "symmetry of sacrifices" for all those involved. In order to allow a joint management of large predators, it is necessary to develop a common approach with neighbouring countries – this of course requires political mandates (see the case of bear "Bruno": one country set him free, the other shot him). I think your platform has the right legitimisation to take these process-oriented steps and I invite you to act energetically in this respect.

I would now like to go back to two specific points on large predators:

#### 5. A change in the grazing system is necessary.

The practice of unattended grazing followed for the past 20 years is not compatible with the given reintroduction of large regulators. This must be acknowledged by all stakeholders. This practice is controversial also for land-environmental reasons (forest destruction, risk of erosion due to excessive flocks and uneven grazing). The system of subsidies has been changed – at least in Switzerland – so that unattended grazing is much less encouraged. These are important accompanying measures. Still, further reflections on the reintroduction of large regulators would be reasonable and necessary. It must be tried to reintroduce some elements of the old traditional animal husbandry methods. Can the mule – the "soul" of mountain farming – live a partial renaissance? Objectively speaking, the necessary adaptation of the grazing system presents some problems and is considered as unrealistic by interested parties (lack of the necessary number of guard animals, maintenance of guard dogs and of a continuous guarding system, identification of the suitable people, etc.).

The biggest problem will be convincing animal owners that they must protect their herds and flocks. This means that, implicitly, they accept the presence of wolves.

6. Compensations/Indemnities

We all agree that animal husbandmen cannot bear alone the costs of possible protection measures. Models for preventive measures and/or compensations must be developed, so as to effectively reduce losses and conflicts to an acceptable level for all stakeholders. More fairness in indemnities is absolutely appropriate.

7. Sustainability requires to move away from sectorial actions

Finally, I would like to turn to institutional representatives and I'll go back to the definition of sustainability. On this point, I learnt a very important lesson at a leadership course. It was said that hierarchy mainly aims at stabilising a system. But the necessary behaviour is different:

*“Sustainability also requires that sectorial approaches and actions are abandoned and that the willingness to cooperate is embraced. This will make it possible to overcome even institutional barriers”.*

This is my deepest belief and I would like to share it with you – (original version)  
C'est mon avis et je le partage. Thank you very much.

Mario F. Broggi (1945), Triesen FL (mario.broggi@adon.li)

Degree in forestry at the ETH Zürich. Dissertation at the University of Natural Resources and Applied Life Sciences in Vienna, post doctoral qualification at the University of Vienna, lecturer at the Universities of Basel and Vienna on Alpine land use and environmental protection.

28 years as freelance ecologist with offices in Zürich, Schaan-Vaduz, Mäder (Vorarlberg) and Vienna.

1983-1991: president of the International Commission for the Protection of the Alps CIPRA. 1997-2004

Director of the Federal Research Institute for Forests, Snow and Landscape (WSL), Birmensdorf ZH.

He currently works for a number of foundations that operate in the field of international environmental protection.

