Shepherds’ know-how faced with globalization and nature conservation: a french experience
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Compared to the USA, France is a small country: its size is about two or three Western States and the population is 64 million people, including ~1,300 professional shepherds. France is a country where people have been herding sheep since around 2,000 B.P., when long dry periods, due to climate change, drastically reduced the number of wild species to hunt. We will not tell you about the whole story, as we will jump to the past hundred years.

Some big changes to deal with

The past one-hundred years were a pivotal period in Europe including World Wars I and II. Millions of French people were killed, mostly civilians. Many young people were working at that time in agriculture, some as shepherds.

Before then, shepherds were the family’s youngest boys, who didn’t go to school. Some of them also came from Italy and Spain. Many were paid a little money, but sometimes with a bottle of wine. Today, most of them are French young urban people searching for a job with a societal meaning and a better life, far away from the overcrowded and polluted city life condition. They have no family history of shepherding (Figure 1).

Before, shepherds were herding small village flocks for wool production, manure for local cereal crops and also some meat. Every move was made on foot, including the transhumance (a form of pastoralism organized around the migration of livestock between mountain pastures in warm seasons and lower altitudes the rest of the year). Now, shepherds mostly herd large flocks from several breeders, for either lamb meat or ewe cheese, with the help of modern facilities such as trucks and solar panels over the shepherd’s cabin.

Who cares about the shepherds’ job anyway? Before, it was local people and family farmers, plus national foresters who worried about overgrazing. Now, it’s diversifying a lot. Now people involved in the meat, lamb and cheese markets, in the European policies for landscape and biodiversity conservation request targeted grazing and people for whom a sheep flock
reminds them of their grandparents’ work at the farm.

Another big change to deal with: predators, especially wolves. Before, shepherds were allowed to shoot wolves and, as a consequence, most of the wolves were avoiding human activities. Now, France has internationally protected wolves coming from Italy. For some French people, looking at Yellowstone as the ultimate model, the wolf is an untouchable species that represents by itself the “Nature’s welfare.” But what about the welfare of the shepherds? Strictly protected wolves develop opportunistic behavior. They spread all over the country, even nearby villages, and they prefer to feed on domestic sheep than on wild ungulates. This is a huge stress for shepherds, nowadays they are restricted by law to an individually and poorly efficient self-protection system.

**Why are French shepherds still there?**

There are five reasons. The first one is the living pastoral cultures, mostly in the hills and mountain areas: in the Pyrenees, with dairy sheep from which are made delightful cheeses; in the South-Eastern region of Provence, with transhumance between the Mediterranean coast and the Southern Alps; in the Northern Alps and, last but not least, on the Mediterranean island of Corsica.

One point is discouraging in terms of shepherds’ employment by breeders: the price of lamb meat has constantly declined for 30-years due to imports. In March 2007, the price of lamb carcass was only about 2.5 $/pound. Financially speaking, it is no longer profitable to breed sheep in France, except for producing a well-known local cheese. It is no longer viable if there is no sheep farming support by European subsidies and local grazing contracts. And that’s the second reason: shepherds are still being paid for the job. But even with that money, the total income of a French sheep breeder is similar to the salary of a full-time supermarket cashier’s.

A third reason is that strong efforts have been made by France to support collective grazing and to legalize access of shepherds and herders to unused parcels of land. This is because France has a big problem: land division, with family inheritance over two centuries cutting the land into small plots, each one belonging to another owner. Most of the owners are now living in the cities. They don’t care, and sometimes they even don’t know where their plots are located. That is why France implemented three legal tools in 1972: (1) a “Multi-Year Grazing Agreement”; (2) to be signed after the formation of a “Breeders’ Grazing Trust”; and (3) a “Land Tenure Grazing Trust” formed under the local Mayor’s supervision with different land owners. These legal tools are implemented with the help of Grazing Local Services, a free public service.

A fourth reason is the promotion of grazing to help manage vegetation dynamics. In the past, the situation was: too many shepherds, herders and wood collectors. That led to severe overgrazing and damage to landscape, especially in dry mountain areas. After that, the French National Forest Service, who owned large parts of the land, said good-bye to shepherds, and planted pine trees to “restore the soils.” However, sometimes it was, and still is, a green desert. But foresters did not get enough funding to manage plantations, to fight against shrub dynamics and to prevent wildfires. This is why shepherds are now called to the rescue, to limit encroachment dynamics and to re-create, through targeted grazing, a more diversified and less flammable landscape. This is a part of what we call in Europe “Agri-Environmental grazing contracts,” mostly promoted by regional and national parks managers, nature conservationists, and wildlife reserve managers.

Figure 1. Most shepherds today are urban youth.
The fifth and last reason is that France has five Shepherding schools that welcome an overall of 60+ trainees per year. That means a renewal of the shepherds’ population of around 2.5% yearly. Trainees are mostly young urban people, who discovered the school while browsing on the Internet. It is in strong demand, about 100+ candidates per school per year, but there is also a high dropout, as many of the candidates are kind of dreamers. The school generally offers one year of training that involves sheep breeders and professional shepherds: (1) trainees have an initial field experience with an experienced shepherd; (2) back to school, with most of the class contents aimed at responding to practical questions; (3) a second field experience. In the end, most of the trainees are recruited by a breeder, or a Breeders’ Grazing Trust.

Confusing perspectives

Nowadays, there are confusing perspectives for French shepherds. On one side, globalization is affecting even small village breeders, making it harder to pay for a shepherd’s salary. On the other side, there is a growing interest to support grazing for environmental purposes: wildlife habitat restoration and forest fire prevention.

But sheep breeders would prefer to be paid well for producing lamb meat rather than live mainly on subsidies. And shepherds don’t want to become strict “nature gardeners.”

The only point we can say with confidence is that the legitimacy and the money for shepherding will come more and more from environmental demands. That’s because there is a consensus in Europe: “Grazing is good!” To maintain diversified landscapes, to help to conserve and restore biodiversity and wildlife habitats.

Ok..., but why not replace the shepherd, and his salary, by some efficient fences? Well, this would not be good at all. We will try to explain now our point of view about this.

A shepherd is not a temporary fence!

A shepherd can teach his flock to respect grazingland limits. The very first time a shepherd and his flock enter a grazing sector, if the flock doesn’t know already where the limits are, the learning process begins:

Step 1 - The shepherd has to let his flock approach one of the limits. He has to stay on the front side of the flock, on a visible place, and he also has to place his dog moving visibly just on the limit. When the front group of sheep comes near the limit, he has to shout loudly, something like “Hôôô!” (Figure 2). The flock must already know that this cry means that the shepherd disagrees and, at that moment, the flock moves in another direction.

Step 2 - The next day, when grazing on the same sector, the shepherd places his dog again on the limit, but this time motionless. It’s a reminder for the flock, and usually, the flock turns of its own when arriving at that limit. But, when dealing with sheep, if a part of the flock insists on crossing that limit, the shepherd has to shout again, exactly the same cry, but staying on the edge of the flock. And it works well.

Step 3 - During the following days, if the flock tries again to take a look over that limit, then just the same cry, this time from behind the flock. The learning is
completed, as the flock now understands that this movement will be off limits.

This practice takes advantage of the animals’ excellent spatial memory. That’s why shepherds ask sheep breeders to entrust them each year with a majority of already experienced sheep: “It’s much easier to work, as most of the flock already knows the mountain!,” they say.

Next, the shepherd must appropriately guide the flock inside the limits of the grazing land. This consists of taking full advantage of patchy environments and upgrading the flock’s appetite on less palatable feeds.

A primary rule for herding is to teach the flock what range of forage will be available at a definite period. Most shepherds are talented observers of feeding choices, and some of them take daily notes. They know that a certain plant will be selected depending on the grazing location and depending also on what the flock “expects” about the range of plants offered that period.

They also say that sheep select plants depending on a sort of “temporary palatability scoring”. One score is: “this is the best for now!” Another: “this is quite acceptable!” And third: “this is not acceptable now!” And they say that shepherding consists of adjusting, almost constantly, the sheep “feeding expectations” - what is on offer on some days and what is not. This is to avoid having the sheep search too much for excellent but not available feeds, because they have been already grazed, or because they are reserved by the shepherd for another period of use.

There are two situations a shepherd will try to avoid. First, allowing the flock to consider a range of palatability scoring much too large for what is actually available. That leads to a constantly frustrated flock and lowers significantly the daily intake. On the opposite end, restricting the sheep to a very narrow and too predictable range of palatability scoring leads to a kind of “grazing weariness” and also lowers the daily intake.

Those are the major principles; now, let’s go to practice, starting at the seasonal scale: grazing “quarters” and “sectors.”

A shepherd can adjust the range of palatability scoring of the flock in order to upgrade its appetite. The first practice is to divide the land (e.g. a summer grazing place) into distinct “grazing quarters” (see red lines and letters on figure 3). Every quarter must have its own resting places for the flock, for day-time (e.g. the blue spot) and for night-time. These are comfortable places, spontaneously selected by the animals.

Distinct quarters will have to be grazed in succession during the season, with duration depending on their forage content: amount, diversity and maturity. At first sight, it looks very similar to a succession of
fenced pens... but it’s not, because within each quarter the shepherd will “interfere” on the feed selection and intake. How?

The shepherd divides each quarter into different “grazing sectors” (see yellow lines and numbers on Figure 3) each being defined by the shepherd as a homogeneous area in terms of a predictable grazing response by the flock: i.e., spontaneous flock movement within that sector and its forage palatability compared to the neighboring ones.

Twice a day, the shepherding “circuit” (see the white arrow on Figure 3) will use a succession of different grazing sectors, to optimize the appetite on less palatable ones, creating for the sheep a “full meal.”

At the daily scale: a MENU

For the shepherd, the daily challenge is how to conceive half-day grazing circuits in order to optimize less palatable feeds? This is what we called the MENU Action model, which has been developed with the help of experienced sheepherders in the Alps and with dairy goat herders in Provence (Figure 4). These are very different contexts, but a similar practice, individually and empirically conceived.

When feed intake must be stimulated on a particular sector (“Target-Area”, see yellow square at the center of the model in Figure 4) consisting of quite rough and less palatable plants (e.g. very mature grass or a patch of scrub to be cleared), the herder must identify and use complementary, sometimes contiguous, sectors within the same grazing quarter. These complementary sectors, to be included within the circuit, can play one of six distinct “roles” to create synergetic effects on intake during the meal. The different sectors are assessed by the herder according to two simple criteria: the relative abundance of edible material (Y-axis) and the relative palatability (X-axis) of the sector for his flock, during that period of the year.

At the very beginning of a circuit, the herder has to choose between two “starters”. When the herd appears to have a very strong initial appetite, because the herd comes a little bit late, or because the weather has suddenly cooled, an “Appetite Moderation” sector, with abundant but not highly palatable plants, can be used in order to reduce an excess of initial appetite. Or, to stimulate a herd having a low initial appetite, because the animals anticipate that the herder will take them again to places they have already been grazed too frequently or because it is too hot, an “Appetite Stimulator” sector could be used, offering a highly palatable resource.

Then, after more or less half an hour of one of these two starters, the Target Area is used for the “Main-Course.” It comprises medium plant abundance and palatability. It is possible that this Main Course is sufficient to go to satiety, to fill up the animals, but if it is of medium quality animals often lose interest in this sector after about an hour. At that moment of the circuit, the herder must restore the appetite for the Target Area. And that’s the main action, the main trick, of the MENU: the use of a “Booster” sector.

There are two kinds of boosters. The first one (on the right of the model) consists of using a highly palatable sector. Alternatively the shepherd can lead the animals to a very bad quality sector, very coarse, even with spiny and dry plants, in order to have the herd understand that the main course sector is not so bad if compared to that God forbidden place. The
duration of use for a Booster sector is about twenty to thirty minutes, no more.

Doing that, the herder makes a profitable use from a very “instantaneous palatability” effect.

After the booster action, the herd is led again to the Target-Area, for the “Second Course,” but with a slightly better instantaneous palatability than the Main Course sector, because the circuit, and the meal, goes to its end.

When the animals lose interest in the Second Course, very often there is no more time for the herder to make a new Booster and Course sequence. At that moment, the herder can use a “Dessert” sector, with both high plant abundance and palatability. It is very important this phase of the circuit is not anticipated by the animals. Think about your children at home, if they know they will have dessert in any case...

With goatherders and shepherders acting with MENU, we recorded individual intake levels that were twice the amount predicted by the usual scientific reference model (Figure 5). That unexpected huge difference is because herdiers are almost constantly reviving the appetite during meals, but the scientists don’t.

Conclusion

In France, it is necessary to redefine the shepherd’s job as a multi-functional position at the crossroads between animal production and landscape and nature conservation. The most relevant step will be to start with the work done in shepherding schools, and then define at the national scale what should be a “Qualified shepherd’s employment contract” with a decent salary.

Experienced shepherds are key sources of knowledge about how to take full advantage of a diversified landscape’s forage resources (Figure 6). They know how to teach the flock to respect the land limits, counting on the animals’ excellent spatial memory. They also know how to adjust the animals’

Figure 5. Individual intake levels recorded on rangelands with ruminants that are shepherded are twice the amount predicted by the usual scientific reference model.

Figure 6. Experienced Shepherds are key sources of knowledge about how to take full advantage of a diversified landscape’s forage resources.
palatability scoring of the feeds. They know how to design circuits that optimize on less palatable feeds, creating synergistic effects within a meal that boost the daily intake a lot.

This empirical knowledge appears quite familiar if we compare with some of the BEHAVE principles (“Behavioral Education for Human, Animal, Vegetation, & Ecosystem Management” - see: www.behave.org). But the interesting thing is French shepherds never heard a single word about BEHAVE. They conceive their practices very empirically. They certainly heard about John Wayne, but the American West seems to them so big and so far away.

These days, when we are dealing with topics such as: the relationship between humans and livestock, low-stress handling, feeding management on patchy environments, targeted grazing, land division, nature conservation policies and so forth, our respective “old” and “new” worlds come very close together and it becomes obvious that we need to share experiences, to be able to be resilient and face our sometimes confusing “changing times.”

For more information: A Sheepherder’s Know-How, a book by Michel Meuret and Fred Provenza (eds.), with 30+ contributors is scheduled for release winter 2008-09. Photos and graphics courtesy of Michel Meuret.