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Towards the necessity of a new interactive approach integrating ethnology, ecology and ethology in the study of the relationship between Kyrgyz stockbreeders and wolves

***Abstract.** The cobabitation between men and wolves arouses passions but also scientific questions. Recent ecological studies show that human activities have an unquestionable influence on wolves' behavior. In the same way, if one refers to various ethnological works, it is undeniable that human populations are sensitive to this neighbor whose presence is marked both materially and symbolically. However, in spite of the apparent reciprocity of the relationship between these two species, they were studied up to now only in a unilateral way by ecology, ethology and ethnology. Now, the analysis of data resulting from my fieldwork in Kyrgyzstan shows a more complex reality to the relationship, which compels us to reconsider the way of treating it. The cobabitation between wolves and men, as experienced by Kyrgyz for centuries, is indeed assimilated to a real inter-relationship made up of reciprocal influences. Kyrgyz and wolves seem thus to be involved in an interactive and dynamic relational system. The latter imposes for its study a new approach, one that is more global and dialectical, concerned with the interspecific character of the relationship. However, such an approach inevitably raises methodological if not epistemological problems this article wishes to highlight.*

***Key words.** Ecology – Ethno-ethology – Ethnology – Ethology – Interdisciplinarity – Interspecific relationships – Kyrgyzstan – Stockbreeders – Wolves*

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Résumé. *La cohabitation entre hommes et loups suscite les passions mais également les questionnements scientifiques. Les récentes études écologiques nous montrent que les activités humaines ont une influence certaine sur le comportement des loups. De même, si l'on se réfère à différents travaux ethnologiques, il est indéniable que les populations humaines sont sensibles à ce voisin dont la présence est marquée matériellement comme symboliquement. Cependant, malgré l'apparente réciprocité des relations entre ces deux espèces, celles-ci n'ont jusqu'ici été étudiées que de manière unilatérale par l'écologie, l'éthologie et l'ethnologie. Or, l'analyse des données issues de mes recherches sur le terrain au Kirgystan donne à voir une réalité des relations plus complexe qui oblige à reconsidérer la manière de les traiter. La cohabitation homme-loup, telle qu'expérimentée par les Kirgyz depuis des siècles, s'assimile en effet à une véritable interrelation faite d'influences réciproques. Kirgyz et loups semblent ainsi engagés dans un système relationnel interactif et dynamique. Celui-ci impose pour son étude une nouvelle approche plus globale et dialectique, soucieuse de son caractère interspécifique. Cependant, son élaboration soulève inévitablement des problèmes méthodologiques sinon épistémologiques que cet article souhaite mettre en lumière.*

Mots-clés. *Ecologie – Eleveurs – Ethno-éthologie – Ethnologie – Ethnologie – Interdisciplinarité – Kirgystan – Loups – Relations interspécifiques*

The cohabitation of wolves and men occurs as much in space as in time. Predator distribution extends across the major part of the Northern hemisphere (Mech, 1995), where the majority of wolves have lived near humans (Fritts et al., 2003) since prehistoric times (de Planhol, 2004; Fritts et al., 2003). Men and wolves have had the opportunity to observe one another and to develop strategies in order to live together, generally avoiding the establishment of conflicts which are “best contained through long-lasting associations between the two species, to allow them to learn about each other and find a compromise” (Boitani, 1995: 11).

Wolves would thus adapt to the human presence “through a process of natural/artificial selection and learning” (Boitani, 1995). Recent ecological studies confirm these behavioral aptitudes. Thanks to the development of telemetry techniques, biologists have shown that “spatiotemporal segregation is an adaptation of wolves in order to coexist with humans” (Theuerkauf et al., 2003a: 715). This segregation implies that the wolf has a “detailed knowledge of the environment, including location and rhythms of human activities” (Ciucci et al., 1997: 813). Supported by various examples, in particular the fact that American wolves of the Great

Plains do not seem to react in the same way to humans as their more apprehensive forest cousins, Fritts indicates to us that “how wolves react to humans depends on their experience with people” (Fritts et al., 2003: 300).¹

Thus, the wolf does not seem insensible to human modes of existence, but is the reverse studied? In other words, is it possible that the existence of the wolf exerts an unspecified effect on the behavior of humans? Boitani thinks that “prolonged coexistence with the wolf allows development of understanding and appreciation of the species as it is” (1995: 11). Kellert, basing his remarks on his own results and other similar studies, nuances this by affirming that “people often used increased knowledge to rationalize and reinforce existing perspectives rather than to change them” (Kellert et al., 1996: 980). If each of these conclusions implicitly recognizes the significant effect that the wolf exerts on humans, they nevertheless are not stimulating researchers to study the manner by which this effect is exerted. Lopez had however laid the groundwork for an original approach regarding the influence of wolf behavior on men. Looking into what was known of the Nunamiut, he wondered “what people who lived in the Arctic among wolves, who had observed them for years in the wild, thought about them” (1978: 78) and showed that “if you examine what they have to say, if you watch Eskimos hunt, you discover something about wolves; but you also discover something about men and how they envision animals” (1978: 78). He thus restored the relationship between the Nunamiut and the predator to its context, while insisting on the importance of prolonged contact within a shared environment. Unfortunately, the majority of works dealing with relationships that societies maintain with animals in general and with wolves in particular do not follow this author’s approach. Tackling the question from a perspective either symbolic or materialistic, and generally dissociating men and wolves, they obscure any interactive dimension and any contextualization of knowledge, such as appears in the work of Lopez.

Also, whatever the borrowed perspective, these studies give a unilateral and thus partial vision of a relationship visibly reciprocal, leaving many questions logically unanswered. Indeed, considering the entirety of the data presented by these researchers, one can legitimately wonder *how* “precisely” the behaviors of the wolf are affected by human practices but also and symmetrically, *how* the behavior of this predator exerts an effect on human perceptions and practices, questions which would inevitably lead us to reconsider the bond

linking men and wolves as an inter-relationship composed of reciprocal influences, not static, but fundamentally dynamic, since this would be the result of interactions accumulated during a history common to both species.

However, it must be acknowledged that to raise these questions as well as attempt to answer them is far from simple. To reconsider the characteristics of our study subject implies a profound consideration of which scientific methods to employ. Indeed, how can one grasp the apparent complexity which seems to characterize these inter-specific relationships? Is it not necessary to envisage a new approach, more global and dialectical? This seems to impose itself when one studies the ethnographic data received from a society of Kyrgyz herdsmen engaged in long-term cohabitation with wolves. However, its elaboration inevitably raises methodological if not epistemological problems that this article wishes to clarify.

Kyrgyzstan: land of men and wolves

The choice of Kyrgyzstan as the field of investigation was not accidental. This Central Asian country, located between China and Kazakhstan, can be described as a *shared environment* between man and wolf. Indeed, the latter are distributed throughout the country, and the mountains of Kyrgyzstan contain one of the highest densities of wolves in Central Asia (Bibikov, 1982). Contrary to what can be observed in certain parts of Europe, these predators are not confined to forested areas, which constitute less than 5 percent of the surface area of the country. Wolves and men tend to share the same territory, since the country is made up of 45 percent permanent grazing grounds (Suleimenov and Oram, 2000). Lastly, the open landscape of Kyrgyzstan favors mutual observations and repeated contacts, the more so as Kyrgyz stockbreeders practice extensive breeding. As they are accustomed to say: “he who is with the cattle cannot avoid seeing the wolves”. In this shared environment, wolves and men are also partly dependent on a *common resource*. In fact, the principal economic activity of the country is animal husbandry (Green and Vokes, 1997), and different species constitute the livestock of Kyrgyz stockbreeders (sheep, cows, goats, camels, horses and yaks). These species are all victims of wolf depredations. How then can one not regard cattle as a resource shared between wolves and men?

This context consequently appears favorable to an investigation of human practices related to wolf behavior and in turn likely to influence this behavior. In addition, the political upheavals in Kyrgyzstan since its independence can enable us to understand the other implied characteristic of the relationships between men and wolves: their dynamism. Indeed, the changes in practices that followed these political upheavals give us a certain historical perspective which enables us to appreciate the evolution of the relationships between the two species that interest us.

Practices related to wolf behavior

Following my investigations conducted during seven months in the villages and the pastures of Kyrgyzstan, it appeared that Kyrgyz stockbreeders need to take account of the wolf in a number of their practices, the more so as this animal is regarded as particularly intelligent and tenacious, which increases its capacity for harm in their eyes. Thus the protection of the herds is one of their principal concerns. The object is to attenuate – lacking the ability to eliminate – the impact of predators on their cattle. The integration of the presence of the wolf and its behavior has an effect on the *choice of the pasture*. Indeed, the places containing rock escarpments or rocks, or surrounded by more or less wooded hills, will be regarded as dangerous for the herds because they are favorable to attacks.² Stockbreeders prefer to pasture their herds in pastures where good visibility favors prevention. By so doing, they manage their herds by integrating the concept of predation risk.³ The Kyrgyz also take into account the *seasonal aspects* of wolf depredations. They must thus reinforce the protection of their cattle in winter, a period when the attacks are concentrated on the herds⁴ because of the scarcity of other prey and the intensification of predation pressure which, they state, follows the period of reproduction. In summer, on the other hand, the reappearance of marmots brings a period of relative respite to the herds insofar as these rodents seem to constitute a considerable resource for the wolves. A stockbreeder assured me: “they often attack in winter and in spring, when there are no marmots yet. Afterwards, when there are marmots, they focus on them, and then from September 15, they begin to attack the animals again”.⁵ The specific predation behavior adopted by wolves in regard to each domestic species they hunt is also taken

into account in the stockbreeders' choices. They will monitor the sheep and the horses with more constant attention, while the cows and the yaks, less prone to attacks, are more often left without protection. In addition, the ability of a stallion to protect its herd against wolves is a greatly appreciated criterion.

To fight against predation, herdsman set up means that they claim to be more or less effective. They have few illusions about the efficacy of a wire enclosure against a famished – and clever – wolf, but they know that this prevents them from leading sheep and goats towards the mountains and massacring them by the dozens. Given that there is no true guard-dog protection for the herds,⁶ the best means of defending oneself against the wolf remains a rifle, a firearm with a double purpose: preventive – a rifle discharged in the night discourages possible wolf inclinations – and repressive. In the absence of a rifle, certain stockbreeders tried to frighten the wolves by means of firecrackers, but after a certain time the wolves hardly paid attention to them. The effectiveness was therefore of short duration.

The other solution adopted by Kyrgyz to reduce wolf predation consists of controlling the population by hunting. This is carried out in an official manner by governmental hunters, but poaching seems common. Be that as it may, this activity leads them to a thorough observation of wolf behavior, on which they depend to efficiently hunt them. To do this, it is essential to observe the animal's movements. Also, the hunters receive information from stockbreeders who have seen where attacks took place. Hunting being generally practiced in winter, trails and prints provide good information for those who decide to track the predator. Trappers also use territorial marking places to set their traps, knowing that these places – often juniper bush or a tuft of reed – are regularly visited by wolves. The reduction of the wolf population also occurs through the capture of wolf cubs in the den. The hunters describe the characteristics of the wolf den as a site sheltered from the wind, close to water, in an old marmot's burrow or under pine roots. However, the localization of this site also requires attentive observation of the behavior of the reproductive couple.

These few examples show us how much the various practices put in place by Kyrgyz stockbreeders and hunters are directly related to their appreciation of wolf behavior, in the sense that they require on their part precise knowledge based on their own observations or those transmitted by their elders.

Wolves which adapt their behavior to human practices

In the eyes of the Kyrgyz, human practices are not without consequence on wolves' behavior, since the latter have the reputation of being above all consumers of cattle. Wolves must consequently find a compromise between the availability of this abundant source of food and the risks related to it, since they must approach humans.⁷ In the first place, wolves need to locate this resource, and the narrow range of herd movement is a considerable advantage. Wolves thus depend on breeding practices which regulate the distribution and movements of cattle during the year. In winter, for example, horses and yaks are left in the fields without any protection,⁸ and constitute more accessible prey than sheep, which are kept in pens. Moreover, many informants mention the possibility that wolves follow the transhumance towards the summer pastures. Given the precise descriptions supplied by the stockbreeders of the various hunting techniques of the wolf according to each domestic animal they attack, it seems that Kyrgyz wolves have adapted their predation behavior to domestic animals. Thus, while sheep offer only slight resistance, they are often protected by the herdsman. The wolves thus monitor the herds and wait to attack until the herdsman moves away or a sheep becomes isolated. For their part, bovines offer more resistance, and force the pack to isolate a young yak or a calf. In spite of their size, horses seem to be a relatively easy prey for the wolves which, according to many informants, attract the horse by lying down in the grass and by running, thus pricking the curiosity of the animal – it is then enough to seize it by the throat or by the nostril. All this makes it possible for the wolves to benefit from the considerable resource which cattle constitute, but it is also necessary for them to avoid being killed during these incursions into the human world. This is why they generally attack the herds by night or in bad weather,⁹ thus minimizing contact with herdsman. In the same manner, they avoid large camps and villages and prefer to attack herds around isolated houses and yurts.¹⁰

According to the hunters, the human factor determines the wolf's choice of den site. The latter seek to give birth in an inaccessible place, far away from human populations and not easily locatable. Moreover, wolves manage to avoid drawing human attention to their den, in particular by avoiding leaving prints. Certain hunters affirm as well that wolves go past their den and move backwards

in their own steps or that they return to their den on their backs to avoid leaving traces. Many stockbreeders also report that wolves avoid attacking the herds near their den, thus avoiding any reprisals.

These various assertions demonstrate the great intelligence and adaptive capacities the Kyrgyz attribute to this predator. It thus appears that in the eyes of stockbreeders and hunters, certain wolf behaviors are directly related to human practices. If we take the Kyrgyz point of view, we should define the relationship which binds men and wolves as one of interdependence. Indeed, on the one hand stockbreeders depend financially and socially on their herds and must take the wolf into account in their management of cattle. On the other hand, wolves depend on stockbreeders, who partly condition behaviors that they must adopt to benefit from this resource.

The political upheavals in Kyrgyzstan since the fall of the USSR, which have greatly affected the stockbreeders' and hunters' practices, allow us to verify not only the relevance of this interdependent relationship but also its evolution since, based on interaction, it is characterized by dynamism.

A political transition and changes of human practices

Since the fall of the USSR, many changes have taken place in the practices of Kyrgyz villagers. Private farms have replaced collective and state farms (Giovarelli, 1998). Intensive livestock farming has been abandoned, and pens sheltering 5000 sheep or herds of 100 horses and more have disappeared. The number of head of cattle dramatically fell in Kyrgyzstan and decreased by half between 1992 and 1996 (Suleimenov and Oram, 2000). Changes in the distribution area of cattle have equally occurred during this transitional period. Previously, part of the cattle remained for long months in high pastures, called *sirt* (Jacquesson, 2003), kept by salaried shepherds, cut off from villages and sometimes supplied by helicopter. Now, the cattle tend to graze the pastures around the villages because transhumance costs too much (Jacquesson, 2003). The drop in herd size in Kyrgyzstan has in fact caused a drop in the number of stockbreeders and shepherds, and the size of yurt camps is shrinking. The pastures furthest away from the villages are less densely occupied than before (Jacquesson, 2003). Many

Kyrgyz have recognized that their pastures were formerly much busier, and that, where one sees 5 or 6 yurts today, more than 20 were present during the Soviet era. Moreover, deterioration in the surveillance of the herds occurs, in particular because of the lack of equipment and the confiscation of rifles and wolf traps.

Hunting practices have also changed since the independence of Kyrgyzstan. Previously the government paid hunters relatively high bounties in exchange for wolf pelts. Now, however, rewards are relatively low, and bullets are expensive. Even if they have the right to hunt wolves, the official hunters lack the means and also the time. In fact, there are no more professional hunters. Given the low salaries, hunters must also have cattle to survive. The confiscation of rifles and traps in order to prevent poaching also leads to a reduction of hunting pressure on wolves.

From changes of human practices to changes of wolf behavior

The ethnographic data previously described have led us to define the relationship between the Kyrgyz and the wolves as an interrelationship made up of reciprocal influences. The upheavals in Kyrgyzstan should thus lead the wolves to adapt to the new practices put in place by stockbreeders and hunters, and that is precisely what emerges from my investigations. Many are the informants who report that the wolves have changed behavior since the fall of the USSR. The first impression of the mountain village inhabitants is that wolves have become more numerous,¹¹ and approach the villages more and more. This drawing closer of the predator is explained in two ways. On the one hand, for certain stockbreeders the regrouping of the cattle around the villages in winter can lead wolves to approach the villages and the sheep-folds in order to find their food. In addition, given that hunting pressure has decreased and that, without rifles, shepherds are no longer able to frighten wolves, villagers are hardly surprised that this animal is less and less fearful, no longer hesitates to approach villages and is beginning to attack the herds in broad daylight:

Here, they're coming right up to the village. It's because they are not afraid of men. Before, there were rifles, shepherds, hunting, they were always in the mountains and they only attacked by night, while now, they are hunting during the day.¹²

Discussion

The entirety of these ethnographic data enables us to comprehend the relationship between the wolves and the Kyrgyz as it is lived by the latter. For the stockbreeder as for the hunter, wolves and men are engaged in a dynamic interrelationship. Each protagonist is regarded as an actor in its own right whose behaviors, perceptions and practices act on the other and evolve in contact with the other.

For one who is interested in this relationship, these data are therefore fascinating and troubling at the same time. Fascinating because they allow us to see a complexity which was suspected and which takes shape through the people who have cohabited for a long time with the wolf, not assimilated with an object, but rather with a neighbor, with a competitor and even with an anthropophagous predator; in short, with an alter ego. Troubling finally because the contextual and non-objective knowledge of Kyrgyz shepherds, taken as an object of research, poses problems for us as to how to treat it.

Indeed, one can wonder how to convey this complexity and how to disentangle the knot of practices, perceptions and behaviors put into play, and how this knot forms and re-forms itself during the course of the interactions which tie these two heterogeneous populations together. The complexity of our study subject rests on the inter-specific nature of the relationship to study and of course on our will to treat it as such, following the example of the Kyrgyz. This inter-specificity leads us to necessarily adopt an interdisciplinary approach, going beyond the methodological limits of the existing disciplines, ethnology, ethology and ecology, to allow us to fully grasp this complexity which is a relationship linking actors of a different nature.

Ethnology could appear a priori as the discipline best adapted to help us understand such a phenomenon because it is accustomed to study the complexity of human societies. However, while it has largely interested itself in the connection which can exist between perceptions and practices related to nature and the characteristics of human societies that it has studied, it presupposes with man/environment relationships a dichotomy between nature and culture – characteristic of our western societies – and has generally regarded animals or other living things as passive objects only *good to think* for humans in relation to their material or symbolic appropriation. Also, ethnological studies of the relationships societies maintain

with nature have generally been de-contextualized, neglecting the interactive characteristics which typify these relationships,¹³ characteristics attested to by our ethnographic data. This anthropological lack is currently noted and deplored. Acknowledging the validity of the context in which these relationships occur, which, as we saw, goes beyond the limits of the human framework, certain anthropologists call for a reconsideration of the field of anthropology by integrating the entirety of the “‘existing’ linked to man” (Descola, 2001: 19, 2005; see also Brunois, 2001) and revealing the ability of these “existing” to act on human behavior, i.e. on their practices and their know-how, as well as on their conception of the world (Brunois, 2005). Ingold thus proposes to consider that “humans and animals constitute themselves reciprocally with their particular identities and adaptations” (1996: 131).

This new anthropological approach, recent as it is, confirms the relevance of our present methodological thinking. What about ethology? The wolf’s behavior being an integral part of our research, the integration of ethology seems indeed essential to us. However, what is its current position as regards inter-specific relationships – including human beings?

In the current state of its methodology, ethological studies also seem quite unsuited to the investigation of the complex relationships which link men and wolves. Just like ethnology, this discipline barely considers the animal as an active agent capable of interpretations (Von Uexküll, 1956). Ethology also seems at an impasse when it comes to studying inter-specific relationships involving mankind and animals (Lestel, 2001). In addition, and from a more pragmatic point of view, the approach to and the observation of wild wolves are particularly difficult because of their mistrust of humans. As a result, most of the ethological data on the wolf derive from the observation either of packs in captivity or of wolves isolated from human populations, which tolerated the presence of humans near their den (Mech, 1998). The results of studies undertaken in wilderness sometimes contradict those resulting from observation of captive wolves,¹⁴ highlighting the complex behavior of these animals. However, there are no ethological studies – in the sense of continuous behavioral observations – carried out over the long term on wolf packs living in interaction with man because they remain difficult to access and observe.

Thanks to telemetry and the follow-up of tracks left by animals, ecological studies make it possible to apprehend in another

manner the relationships between men and wolves because, contrary to ethological studies, they can be carried out in zones where men and wolves cohabit.

However, in spite of the abundance and the relevance of the studies hitherto carried out, ecological analysis finds itself restricted to the influence of certain activities or human infrastructures easily quantifiable (presence or not of activity, village size, road use, etc.) on certain characteristics of the wolf population, such as patterns of activity (Theuerkauf et al., 2003a, 2003b; Vilà et al., 1995), selection of resources (Ciucci et al., 2003), reproduction (Thiel et al., 1998), use of space and movements (Ciucci et al., 1997, 2003; Theuerkauf et al., 2003a). The recent contributions of these studies are undeniable and constitute an indispensable base for understanding the relations between human and wolf. However, the relationship is studied in only one direction, that of the influence of human activities on wolves, and it cannot take into account values difficult to quantify such as those revealed by the ethnographic data received from Kyrgyz shepherds.

Finally, it emerges from this review that the only contextualized data that it is materially possible to obtain regarding the interactions between men and wolves are, on the one hand, accounts of naturalists and biologists of their own experiments in contact with the animal, and, on the other hand, the knowledge of local populations. Indeed, stockbreeders and hunters – like field biologists – are regularly brought in close contact with the wolf by their activities or their mode of existence and are thus engaged in an interrelationship with it. Biologists early recognized the relevance of local knowledge¹⁵ but seemed constrained in incorporating it because this knowledge did not fit western science's criterion of objectivity.

It is true that to grasp Kyrgyz knowledge and know-how faithfully obliges us to adopt a new reasoning, which would be in line with the conceptual scope of *ethno-ethology* such as it is described by Florence Brunois, i.e. by integrating the behavior of the animal and the way in which it is perceived by the society and by determining the influences that it can have on the knowledge, perceptions and practices of this society (Brunois, 2005). This new critical approach to the knowledge of others conveys a different vision of the relationship to the animal which enables us to restore the bonds linking certain men with certain wolves locally, and this can only enrich our global comprehension of the interrelationship.

Adopting the ethno-ethological method, the current study carried out in Kyrgyzstan however can give only an outline of the realized complexity because we have access to the behavior of the wolf only through the Kyrgyz's perceptions and practices, on the one hand, and, on the other hand, the results of eco-ethological studies developed in other countries.¹⁶ Now, the global understanding of the complexity of interrelationships occurs through the understanding of interactions and their evolution, which requires the realization of a parallel, complementary and long-term follow-up of wolf and human populations. Within this framework, the development of etho-ethological and ethno-ethological approaches (Brunois, 2005; Lestel et al., 2006) seems to be a possible and attractive route, if they can be based on a common paradigm which would have as its study aim these inter-specific interactions.

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Notes

1. Examples of this continue to increase. An article by McNay shows that, when wolves become used to encounters with humans, their inhibition tends to disappear and they can become aggressive (McNay, 2002). Wolves, when they are protected, equally become used to human disturbances, including proximity to their den or meeting site (Thiel et al., 1998). Finally, in the regions where they have been harassed for a long time, it is highly probable that they have developed a more nocturnal life-style in order to minimize contact with humans (Vilà et al., 1995).

2. It has moreover been demonstrated that the spatial characteristics and those of the habitat are a deciding factor in the predation success of wolves (Kunkel and Pletscher, 2001).

3. This notion of predation risk appears, among others, in Ripple and Beschta's article (2004).

4. A similar situation is observed in Mongolia. The occurrence of livestock remains in wolf scats increases in winter and decreases in the summer period.

5. Interview 314, name of informant: Össöngoul, 31 July 2003, Lake Song-Köl, Kyrgyzstan.

6. Some dogs, however, turn out to be able to protect the enclosure against wolves. As for others, "they come into the yurt with the tail between their legs" as soon as the wolf is coming.

7. Ciucci et al. (1997: 813) describe the same situation in Italy, with a compromise between the principal food resource (refuse) and the necessity to avoid “any form of human pressure and interference”.

8. A similar situation is found in Mongolia, where the unprotected horse constitutes one of the favorite preys of the wolf (Hovens et al., 2000).

9. Other studies show this predilection of the wolf for nocturnal or bad-weather attacks (Kumar and Rahmani, 2000).

10. It should be noted that in winter the cattle are rarely guarded in the village but rather put in cattle pens more or less isolated, at a distance of 1–5 kilometers from the center of the village.

11. Recent ecological data on the wolf population of Kyrgyzstan are, to my knowledge, non-existent. The number of wolves present in Kyrgyz territory is estimated at 4000 (Boitani, 2003).

12. Interview 862, name of informant: Ömör, 20 March 2004, Atsha-Kaïyndy, Kyrgyzstan.

13. With certain exceptions. Ingold already described in 1974 the relationship between the Lapps and the reindeer as a relationship between two populations in interaction, since both “form a social group, and are guided in political/economic decision making, which takes the other into account, by very different sets of goals and values” (1974: 523).

14. In this regard, Mech has thus been able to demonstrate that wolf packs are not regulated by a linear hierarchy but rather are constituted by family units in which the parents dominate their own offspring (1999).

15. See on this subject Stephenson’s article on the knowledge of the Nunamiut (1982).

16. Ingold describes in these terms the position of the field researcher confronted by the man–animal relationship in regard to the reindeer: “unable to use the reindeer themselves as informants, his view of the situation is inevitably incomplete” (1974: 524).

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