

Project Title

**Human-leopard conflict Assessment in and around
Pir Lasora National Park Dist. Kotli, AJ&K**

SGP WWF-PAKISTAN



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Progress Report

**Retaliatory killing of Common leopard (*Panthera pardus*) in
and around the Pir Lasora National Park**

□ Introduction to Azad Jammu and Kashmir

Azad Jammu and Kashmir is situated at foothills of Himalayas. The total area of Azad Jammu and Kashmir is 5134 sq. miles stretching between 73°-75°E and 32°-45°N to 35°-07°N (Department of forestry AJK, 2008). It is bounded in the north by Northern areas; in the west by North West Frontier Province (NWFP); in the south by Punjab and in the east by the line of control (IUCN, 1997). Poonch, Muzaffarabad, Neelum, Bagh and Kotli districts are mountainous, while Mirpur, Kotli and Bhimber are plain areas; District Kotli is a hilly area rising towards the high mountains of Poonch district.

The available statistics suggest that some 5,170 km² (43%) of the area is under the forest, while only 1,730 km² (13%) is under agriculture and rest of 44% of the area remains under wasteland. The main rivers are Jehlum, Neelum and Poonch.

The climate is sub-tropical highland type with an average yearly rainfall of 1300 mm. The elevation from sea level ranges from 360 m in the south to 6325 meters in the north. The snow line in winter is around 1200 meters above sea level while in summer; it rises to 3300 meters.

□ Introduction to Pir Lasora National Park (PLNP)

Pir Lasora National Park (PLNP), located in district Kotli Azad Jammu and Kashmir, is the most important areas due to its biodiversity and ecology. Several threatened and endangered species of mammals and birds occur in this area including *Catreus wallichi* (cheer pheasant), *Panthera pardus* (common leopard) and *Axis porcianus* (barking deer) and *Mecaca mulata* (rhesus monkey). Questionnaires survey showed the existence of Black bear and Nilgai which have been extinct from this area as a result of habitat degradation and illegal killing of these and some other species. WWF project will be proved initiative for the conservation of the biodiversity of this area.

▪ History of the Park

The area was reserved as Rukh (Protected area) during Dogra regime before the independence. Pir Lasora National Park is proclaimed as national park in 26-05-2005 comprising an area of 1580 hac.

▪ Purpose of the Park establishment

To conserve the representative fauna and flora of sub-tropical thorn forest of AJ&K.



▪ Location of the park on map



▪ Physical location of the park

Pir Lasora National Park (PLNP) is situated in District Kotli, 30 km towards the East of the Kotli city and is bounded on the east by Nakial Valley and LOC of occupied Kashmir, on the west by UC Khadgujran, On the North West side of Park, District Kotli is located, on the north by UC °Qamrooti and on the south by Karella-Majhan is situated. The Park is located between 33° 25.92 N to 33° 29.31 N and 74° 05.64 E to 74° 03.202 E. It mainly consisted of one large and some patches of small hills. The PLNP was established by combining the forest compartments 13 to 16, and 30 to 32. The Pir Lasora National Park (PLNP) was established by combining the forest compartments 13 to 16, and 30 to 32 with a total area of 1080 ha. It is the 3rd largest national park of the AJ&K declared for protection and conservation of native fauna. PLNP is very close vicinity to line of control, so the park is supposed to provide an excellent shelter site for endemic and migrated species i.e. common leopard and barking deer.

▪ Global Significance

The valleys of the park show a typical pattern of subtropical pine forest type vegetation however the tops/mountains follow a sub-tropical dry evergreen forest pattern. As the area is at an elevation of above than 1000m, so it has-been categorized as Cold and Humid Forest with respect to its climate. The average rainfall per annul is 1500 mm. Due to degradation of biodiversity and habitat loss, the total area of the forests has been decreasing rapidly since last few decades.

▪ Fauna of Pir Lasora National Park

Dominant wildlife species recorded in and around the Pir Lasora National Park, Common Leopard, Rhesus Monkey, Palm Civet, Kaleej and Koklass Pheasant, chukar, partridges (black and grey), quail and .17 species of mammals belonging to 16genera, 11families and 5 orders were recorded. According to local residents, these monkeys regularly visit their crop field and damage especially cornfields.

About 49 species of birds belonging to 33genera, 23 families and 8 orders were recorded. Of the recorded species, *Pycnonotus leucogenys* was found to be most abundant specie. Other abundantly found species includes, Indian common myna, Jungle Babbler, House sparrow, collard Dove and Blech Pongo *Pinus roxburgii* is the dominant tree species in the whole park area, followed by Kahu and Irian. The main shrub species include Gugal followed by *Dodonea viscos* and Granda, respectively.

▪ Flora of Pir Lasora National Park

The dominant vegetation include Chir pine, Tarkana , Phulai , Sum , Kao, Kangar ,Bankhor , Batangi , Bagnoo/Palach ,Oaks , Sumblo , Kainthi , Pashair , Jhoo Safaid, Kanees, Ratan Jot, Ajwain Khorasani, Rewand Cheeni, Neer Pattar, Mushk Bala and shrubs Sumblu, Kainthi, Phut, Pashair, Guchh, Timber etc.

▪ Climate of the park

The climate of area is pleasant to cold type in different months of the years. December and January are the coldest months during which temperature fluctuates from 2.0 ° C to 20.2 °C. June and July are hottest months of the year when temperature remains between 21.8 ° C to 33.5 ° C. At sufficiently high altitudes, the drop in temperature results in the precipitation taking the form of snow which accumulates to a depth and lies on the ground for a period depending on the amount of winter precipitation and on the temperature prevailing.

▪ Significance of the park

A number of globally important species has been reported in the study area i.e. cheer pheasants Chukor, Kaleej pheasant, Common leopard, Red fox, Leopard cat, Palm-civet Pangolin and etc.

▪ Mineral potential of the Area

During the execution of mineral exploration/ deposits of industrial minerals, good quality marble, lime stone, dolomite, iron, coal etc observed in the area. (Mineralogy Department MZD, 2008)

□ Data Sources

The sources of data used were primary and secondary data. Primary data sources were the field observations, formal and informal interviews with the local people using PRA tools and focus group discussions. The sources of secondary data were libraries, experts on the subject and internet. Field visit and structural questionnaire were used to get primary information from the area.

□ Population Status of Common Leopard

Looking for the footprints in areas of soft grounds such as near water, muddy ridge (PIPs were also established) was used to detect the presence of the species. The locations where the marks are found were noted with Global Positioning Systems (GPS). The sizes of the pugmarks were noted in each site where the marks were detected. This gives estimation about the number of individuals that exist in the study site.

▪ Leopard Tracks Design

For designing the leopard tracks, the resource map of the area was consulted. The different land – use types representing the habitat of common leopard were identified. To remove the biasness, the tracks were designed in such a way so that the tracks represent every land use types and thus represent different habitats of common leopard. Eight tracks in total were drawn on the basis of different habitats in the study area. Sides of the tracks were also observed for the signs of the leopard. Local trails were also used as tracks. Different indirect signs and marks were recorded i.e. carcasses, scats, scratches, scrapes, pugmarks etc. The locations where the marks are found were noted with GPS.

□ Common leopard (*Panthera pardus*) in PLNP

Common Leopard (*Panthera pardus*) is among the most widely distributed large cats worldwide, and is found throughout Africa and Asia (Al-Johany, 2007). In ancient times the leopard ranged well beyond the current geographical distribution, migrating into Asia and northwest Europe from Africa, about 60,000 years ago (Uphyrkina *et al.*, 2001). In Pakistan common leopard is confined to Himalayan forest regions up to the limit of the tree-line or the lower altitude valleys in the more arid mountainous regions further north. It also inhabits broken hilly or mountainous country throughout Waziristan, Baluchistan and Sindh Kohistan in association with *Acacia* scrub forest (Roberts, 1997).

The leopards are versatile animals in a sense that they can adapt to almost every types of the environment. They can survive well in dense forests as well as in the grasslands. The only factor that it is concerned with is that the area must have sufficient food and cover. The main reason why leopards are adaptable is that they have a high degree of flexibility in their diet.

Common Leopard (*Panthera pardus*) is listed as critically endangered in Pakistan and occurs in the highlands of Baluchistan and Sind, mountain forests of Punjab, Kheyber-Pakhtonkhwa and Azad Jammu and Kashmir. In Pakistan, scientific data on biology and ecology of this species is very scarce which is prerequisite for its conservation.

Under the Project “ **ASSESSMENT OF HUMAN LEOPARD CONFLICT IN PIR LASORA NATIONAL PARK, NAKIAL KOTLI AZAD KASHMIR**” The present study was conducted to determine retaliatory killing and local community attitude towards the conservation of common leopard in Pir Lasora national park (PLNP). Common leopard is the key specie of Pir Lasora National Park. It is on the verge of extinction from the territory of the Park and surrounding area.

Every year the retaliatory killings of common leopard have been recorded and this situation is continuous.

▪ **Human - Leopard Conflict**

Wildlife management is often thought of in terms of protecting, enhancing, and nurturing wildlife populations and the habitat needed for their wellbeing. However, many species at one time or another require management actions to reduce conflicts with people.

Each household were surveyed to gather information about the common leopard including livestock depredation, its habitat, and people's perception on the species and so on. As the common leopard depredations on livestock are largely responsible for their conflicts with humans and for the historic collapse of their geographic range. Understanding of patterns associated with such predation can be used to mitigate its effects and promote more stable coexistence of leopard and humans.

In and around the study area, human activities have caused declines in leopard population levels, habitat and contraction of their geographic ranges. Human wild life conflict is not a new issue in the wild life management. However, the methods of handling carnivore related problems remain unique and distinct for each species depending on the area time and resources.

According to the local community when leopard attack humans and livestock, campaigns to eradicate them are started, and this ended with the killing of species. Understanding the circumstances surrounding leopard attacks and mitigating them is a crucial issue for conserving and managing this endangered species.

As the geographical pattern of the Pir Lasora National Park provide the suitable protection sight for the common leopard. In the past good population of natural prey (Barking Deer, and Rhesus monkey) were supported the population of common leopard in Pir Lasora National Park. Illegal hunting of barking deer create threats for the food of common leopard and also increase the concept of livestock depredation.

A careful perusal of the preceding account would show that several factors such as habitat destruction, decimation of prey species, conflict with grazers, direct conflict with people, threaten the survival of common leopard in Pir Lasora National Park.

PLNP have a potential and good habitat near the surrounding their boundaries, by extending the area and it will be the support to the habitat and survival of common leopard. After increasing the area it will be a large enough to sustain viable population of common leopard. Previously

there were no existence of human population with in the marked boundaries of national park but because the parks boundaries were drawn to exclude prior settlements, people now live on the park’s borders, within in the park where they are virtually surrounded by wildlife populations.

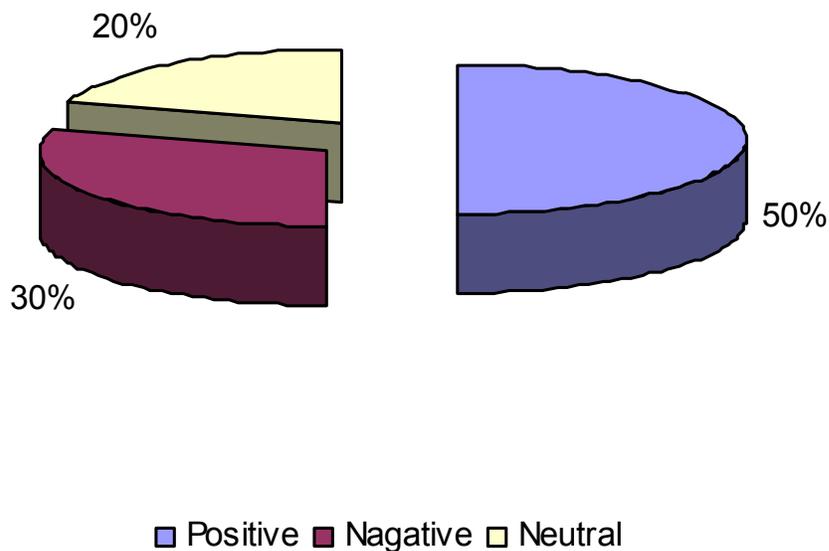
This is also cause a of retaliatory killing of common leopard

▪ **Local community attitude toward the common leopard conservation**

Interactions with the locals have confirmed that the leopard is one of the prominent predators which are mostly responsible for the killing of the domesticated animals upon which the villagers are economically dependent. Local community surveyed, they answered that the trend of damages by the leopard have increased during the summer season.

50 % people perceive that there are many benefits of conserving the leopards in the form of support to tourism, ecological balance, biodiversity conservation etc. still 30 % people think that there are no benefits of leopard conservation and told that killing leopards is the only way to reduce the problem of livestock depredation and 20% were impartial. This may pose difficulty in launching the leopard related conservation initiatives smoothly in the area. This tendency could ultimately pose as a survival threat for the population of the existing common leopards in Pir Lasora National Park.

Local Community Attitude



❑ Retaliatory killing and Capturing of the Common Leopard in PLNP

The common conflicts between humans and wild animals in different parts of the world involve livestock depredation and crop damages. Relationship between humans and wildlife is extremely necessary for maintaining ecological balance. But there occur many instances when either of the two affects each other negatively. This holds true even in case of common leopards.

The human-leopard conflict in PLNP and its surrounding areas was assessed by the project team through comprehensive discussions with the effected families, visits to the sites where such incidence happened (consultation with local elites and officials of wildlife Department.

As in the area human population expand and encroach ever further into natural habitats of Common leopard, so the conflict between humans and Common leopard are increasing with passage of time in the area. Common leopard suffering not only from significant habitat degradation but also from declined in their prey species.

What are the causes of, high rate retaliatory killing of Common leopard in and around the Pir Lasora National Park national park? To answer this question project team travelled through potential leopard habitat to interview the locals about this endangered cat.

Project team surveyed and interviewed the local community, community watcher, shepherd, and wildlife department. In spite of significant habitat loss, but also from decline in their prey species within the habitat some major causes have been observed. Pir Lasora National Park is situated at LOC. There is thick forest along the LOC, but there are large patches of cultivated land between this thick forest of occupied area and PLNP. There is connectivity with neighboring forests and the PLNP. Of all the ranges, only the core zone of PLNP has the potential to sustain breeding of leopard.

The other Ranges can hold only dispersing or displaced leopard due to high level of anthropogenic disturbance and low wild prey population. During the crop cultivation season these cultivated area provide good protection, and safe way for the movement of the wildlife including common leopard. The number of leopard sightings reported by local community. Based on the available secondary information it is evident that the total number of leopard sightings observed was on the downward trend in and around PLNP since 2000. As this season ended after the cutting of crops and grass (fodder for summer) the safe movement of wildlife disturbed. At the end of this season the safe way of wildlife also ended.

Forest fire is major problem in PLNP which forces the wildlife to move from this area. When wildlife move from the PLNP to thick forest of occupied area during this movement wildlife encounter with local community as a result of which hunting and retaliatory killing happened. So Last year two cubs one dead and other live have been captured by the local community. This aspect also requires further scientific evaluation.

The common conflicts between humans and common leopard in PLNP involve livestock depredation. These perceptions are always compounded by an innate fear of large predators and long term negative attitudes that have developed among humans. The human-leopard conflict in PLNP and surrounding areas will be assessed by the project team through comprehensive discussions with the effected families, visits to the sites where such incidence happened.

As this season ended after the cutting of crops and grass (fodder for summer) the safe movement of wildlife disturbed. As a result, leopards are moving into more marginal areas searching food, finding easy prey in domestic livestock and also attack humans. Many communities in the area are heavily dependent on their livestock for sustenance and income, and therefore when livestock predation occurs, leopards are captured, killed in retaliation or actively persecuted to prevent similar events happening in the future. These killings are a significant threat to the survival of common leopard.

In the past good population of natural prey (Barking Deer, and Rhesus monkey) was supported the population of common leopard in PLNP. Illegal hunting of barking deer is indirect threats for the survival of common leopard and also increases the concept of livestock depredation. A careful perusal of the preceding account would show that several factors such as habitat destruction, decimation of prey species, conflict with grazers, direct conflict with people, threaten the survival of common leopard.

Common leopards are also known to visit the human settlements quite frequently killing the domesticated animals and also terrorizing people. A specific questionnaire was developed to collect information regarding human leopard conflict and retaliatory killing of common leopard. A total of 12 leopards were killed, 02 were trapped from the area and 03 human beings were attacked and badly injured by the leopard at different locations.

Since 2000, a total of 12 leopards (12) were killed, 02 (reported) were trapped from the area and 04 human beings were attacked and badly injured by the leopard at different locations in the area. Two men were attacked before 2005; two were attacked in 2010 recently. Although

there was no incidence of killing people by leopards in or around the area but after the attacks repeatedly during the year 2010 and effectee injured severely tension, as result of which terror and fear among community persisted, which was a serious threat to the survival of leopards.

Retaliatory killing of common leopard occurred in different parts and around the areas. This is in addition to the killings that might have done without being noticed or reported. Detail of the capturing and retaliatory killing of common leopard described as below:

- **Two leopard cubs have been captured**

The first leopard cub was captured before the 2000. That leopard was gifted to the Prime Minister of Pakistan which was later donated to the zoo in Pakistan.

According to community watcher the second cub was captured by local community from the vicinity of national park, and gave to the Police station, after the successful approach of AJK wildlife department they got the cub reoffered to the Patika wildlife zoo. Cub was ill and unfortunately it could not recover, and died in captive condition in Patika zoo.

- **Two rare leopards shot dead in Pehli before 2000**

Pair of common leopard entered the village Pehli khandar. They followed by the Local community and finally killed them. No action was taken against the killer common leopard. There is a lack of awareness about this endangered specie. After the sighting and finding the leopard, people consider their duty to kill the leopard. Local community considers the leopard their traditional enemy that is beyond the truth. (Table 1)

- **Leopard shot dead in Bhermoch before 2000**

During the survey we came to know about an old case of illegal killing of leopard in Bhermoch village, on the western side of the National Park. Local community has shot dead a rare leopard saying it threatened their lives.

After a week search that was started after the report that was received with information that a leopard was killed. Wildlife staff handled and inquired the illegal killing of endangered specie. After the killing, people buried the remains of leopard. People also have the piece of meat hanged with tress for dry purpose. People use the leopard, s meat for the medicinal values which can also be the cause of leopard killing. (Table 1)

- **Leopard shot dead in Mehra before 2000**

A leopard entered the village Mehra and killed by the local community. According to local community it was a day time when leopard entered the village as a result of which there was a fear and terror among the villagers. Finally the assistant commissioner of the area allowed the

villagers for killing the leopard. The postmortem report showed that leopard was ill. There is a lack of technical staff in the area that handled such urgent condition. (Table 1)

▪ **Leopard shot dead in Billnailan Shahgajan before 2000**

After that another case was brought in front of us that a leopard killed by the local community but they buried that due to the fear of wild life department. They buried the leopard after his illegal killing when they come to know that WL department gets informed with this killing and will punished them. Wildlife department inquired the case and after successful operation of investigation brought out the buried leopard. Because of the poor implementation of the laws of wildlife protection, there is a still threat to the survival of common leopard. (Table 1)

▪ **Leopard shot dead in Majhan before 2000**

A leopard shot dead after live sock depredation in the village Majhan. (Table 1)

▪ **Two leopards shot dead in simmti in 2008**

Two leopards were shot dead by Local community saying it threatened their lives. Killing of endangered species happened in simmti village, some 3 kilometers eastern of PLNP. The leopard had left its habitat and descended on the village where he was shot dead by villagers allegedly in self-defense. (Table 1)

▪ **Dead leopard's cub found in village Majhan in 2009**

A cub of leopard was found dead on 2009 out side of national park on eastern side near the village Majhan. (Table 1)

▪ **Two leopards Poisoned in Nakial in 2010**

Two leopards were found dead on 2010 in the protected area near the village Gharbi. According to the wildlife official postmortem was performed and established that the leopard were ill. There were also the chances of leopard poisoning because before a week leopard killed the live stock at the same place. Question also raised both leopard were ill at the same time and same place. (Table 1)

▪ **One Leopard killed in Qamrooti in 2010**

A leopard was killed by hitting it on the head with axe and stone by the community after the leopard attacked and injured the man (Table 1).

The results revealed that sensitivity of human-leopard conflict was a potential threat for the survival of leopard.

Human-leopard conflict in PLNP is described in tabulated form as under:

Table 1: Retaliatory killing of common leopard

Killings	Site	Year	Area(NP)	M/F	Villages	Killed by	GPS reading
2	Village	Before 2000	Inside	M,F	Pehli Khandar	Shoot	N,33,28.426 E,74,07.009 4266
2	Village	2008	Outside	M,F	Simti	Unknown	
1	Forest	Before 2000	Outside	M	Mehra	Shoot	N,33,30.440 E,74,04.414 3305
1	Village	Before 2000	Outside	M	Nailan	Shoot	N,33,29.900 E74,03.546 3200
1	Village	Before 2000	Inside	F	Bhermoch	Shoot	N, 33,26.116 E, 74,03.807 3166
1	Forest	Before 2000	Outside	M	Majhan	Shoot	N, 33,27.094 E, 74,07.483 3963
1	Village	2009	Outside	M	Majhan	Unknown	
1	Forest	2010	Inside	M	Gharbi	Poisoned	
1	Forest	2010	Inside	F	Latehri	poisoned	
1	Forest	2010	Outside	Unknown	Qamrooti	Stones, axe	
Total killing 12							

Table 2: Details of leopard trapped by community

Number of leopards	Village	Year	M/F	Status	GPS
1	Turkundi	Before 2000	M	Alive	
1	Khoiratta	2009	M	Alive	

Table 3: Leopards attacks on human beings

S. No.	Village	Killed/injured	location	Date	GPS Readings
01	Pehli	Injured	Inside	Before(2005)	33,28.426 : 74,07.009 : 4266m
02	Sehri Tangal	Injured	Inside	Before(2005)	33,28.214 : 74,05.140 : 4854m
03	Qamrooti	injured	outside	13,06, 2010	
04	Bnala	injured	outside	15, 10, 2010	33, 30. 138: 74, 05, 814: 4391m
05	Dubsi	injured	outside	05, 10, 2010	

During the project; the project team noticed few specific things related to the killing of common leopard. When the corn crop, grass cutting and fodder collection for the winter season ended leopard in search of shelter move towards the forest on the eastern side of national park which exist near the LOC. During this movement encounter with local community ended with attacks on people and killing of the specie. It has always been hard to convince such group on the need for the conservation of leopards. The situation thus demanded an immediate attention and adoption of measures that may help reduce the existing level.

PLNP has no history of leopards either eating or killing people in the past, this resulted in tremendous hue and cry on part of the community, with demands for the total elimination of leopards.

❑ **Recommendation for the Conservation of the Leopard**

- As the common leopard is endangered species there is a need and it's a time to safe this beautiful member of our wildlife society in Pir Lasora National park other wise it will be a too late. Wildlife department and non government department should start the conservation initiatives for the species.
- There is a need of a big awareness and conflict management project as soon as possible, otherwise we will deprive of our beautiful species. There is alarming stage for the leopard in Pir Lasora National Park. The following conservation strategies are suggested to safeguard the future of common leopard.
- There is the capacity and good habitat around the national. Increase the area of park which will provide the more space for leopard (The ones that currently exist are insufficient to guarantee their survival, yet the conflicting pressures of land use make difficult the acquiring of sufficiently Large, completely protected areas.)
- The PLNP has forest connectivity on all sides. PLNP has very high chance that it will get dispersing leopard from the neighboring areas like Majhan, Androoth and etc. Therefore a comprehensive leopard population revival strategy needs to be developed immediately and implemented. While preparing such plans there is a need to implement the concepts of managing small and isolated leopard populations. Provide or declare the safe way for the movement of wildlife
- There is very little consciousness of the important role that predators play in maintaining the communities of their natural prey, and the integrity of natural ecosystems. Educates local

groups village level communities, the public will be more cooperative in case of leopard situation in the areas. Human-leopard conflict mitigation programmes often form part of a wider portfolio of conservation action, and their efficacy can be considerably increased. Conservation education must be included in the curriculum of school which provides students the knowledge about the importance of the leopard. Conservation education must also be provided to the villagers about the role the species plays in balancing the ecosystem by acting as the supreme predators of hilly region in the food chain.

- Need for deciding upon social approaches (scientific information being least helpful in addressing the retaliatory killings).
- Identification of available options (people killing of leopards)? Any part of the incidence that may have relevance to people etc)
- Involvement of local community and discovering peoples knowledge linked to the issue of leopards attack on people and their livestock.
- Relevance of scientific data linked to indigenous knowledge on this particular aspect of conservation
- Compensation scheme for live stock may substantially increase tolerance among communities The most immediate to human-wildlife conflicts is the provision of compensation to the herder/farmer. Suitable amount change the attitude of livestock owner against the leopard for some extent.
- Involvement and interest of Government organizations and NGOs in this human-leopard conflict issue.
- Local people must be encouraged to follow appropriate methods other than killing the leopard to save their livestock. Proper day guarding of the livestock in grazing lands, and not using the leopards' prime habitat for the grazing purposes are a few methods which can be used in the area.
- The conflict arising between human and leopard must be monitored regularly, if possible within short interval of time. This could help in making the concerned authorities well aware of the extent of human – leopard conflict levels and assist in making some special arrangements to reduce the conflict.

- A database must be prepared and maintained by conducting a detailed study about the leopard in the area by the concerned authority which contains everything about the leopard's situation/condition in the area.

Pictures: Leopard's cub Captured from Pir Lasora National Park



Pictures of Pir Lasora National Park

