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Abstract: This action plan contains an overview of snow leopard status, distribution and threats in Mongolia and identifies conservation goals, stakeholders and management authorities. The factors currently posing a threat to snow leopards in Mongolia are divided into the following three categories: 1) Legal issues 2) Monitoring of snow leopard abundance and distribution 3) People and snow leopards. Each category is broken down into a list of problems and actions to be taken to solve these problems. Authorities responsible for actions and organizations suggested for financial support are listed. The plan further presents an economic incentive program for local herders and a tiered management system for protected areas.

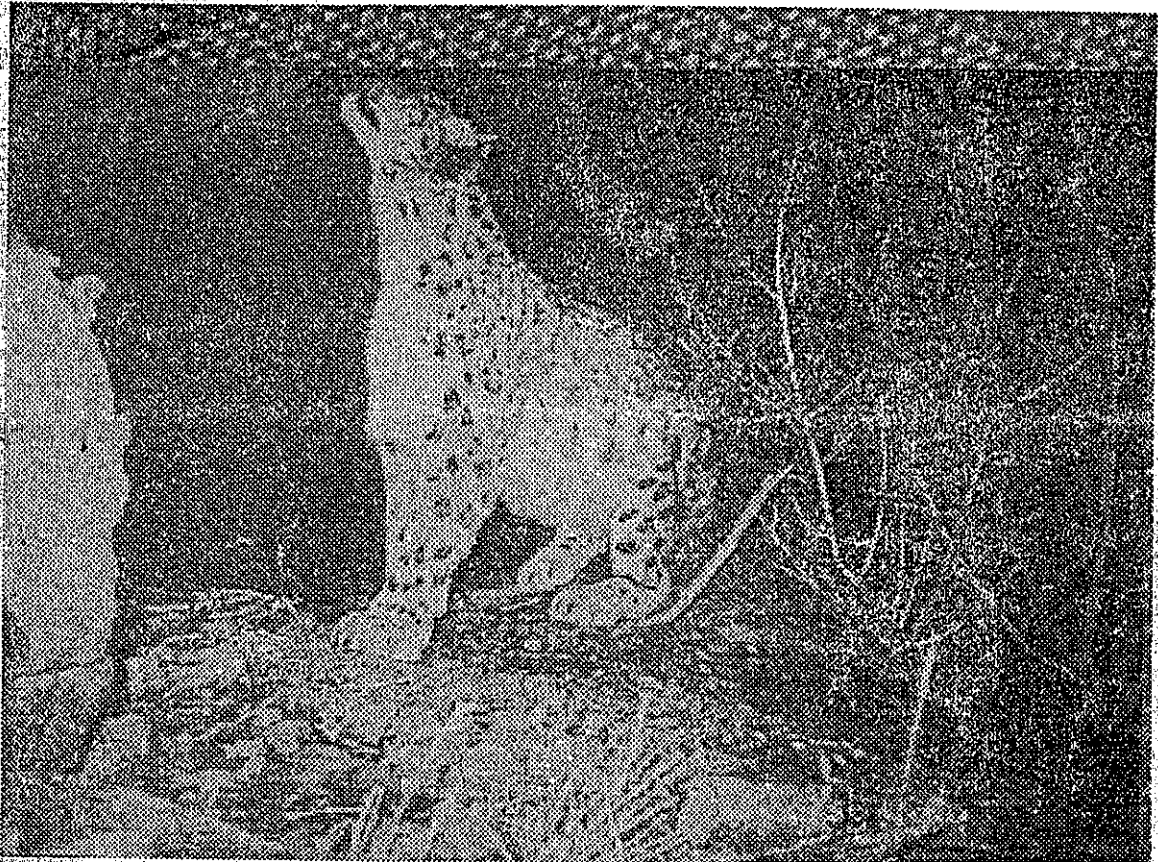
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*Mongol
2000.10.07.*

~~DRAFT~~

SNOW LEOPARD MANAGEMENT PLAN OF MONGOLIA



PREPARED IN COLLABORATION AMONG
THE WWF MONGOLIA COUNTRY OFFICE,
UVS NUUR PROTECTED AREA ADMINISTRATION,
THE MINISTRY OF NATURE AND THE ENVIRONMENT, AND
CONCERNED AGENCIES AND INDIVIDUALS -

MARCH 2000

SNOW LEOPARD IN MONGOLIA

SPECIES

Irbis, Snow leopard, *Uncia uncia*

LEGAL STATUS IN MONGOLIA:

Listed in the Mongolian Red Book as Very Rare (corresponds to the *Endangered* category in the IUCN Red Data Book). No personal or commercial taking is allowed.

LEGAL STATUS WORLDWIDE:

Listed in the IUCN Red Data Book as Endangered, and on Appendix I of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) which include species considered threatened with extinction. The IUCN Species Survival Commission Cat Specialist Group assign the snow leopard a Global Vulnerability Ranking of Category 2 (highly vulnerable) and actively threatened due to hunting.

DISTRIBUTION:

The range of the snow leopard is restricted to the mountainous regions of Central Asia including the Altai, Tien Shan, Kun Lun, Pamir, Hindu Kush, Karakoram, and Himalaya ranges. It is known to occur in twelve countries, namely Afghanistan, Pakistan, India, Nepal, China, Bhutan, Mongolia, Russia, Tajikistan, Uzbekistan, Kazakhstan, and Kyrgyzstan, with occupied habitat of about 1.6 million km². Snow leopards most frequently occur at elevations between 2,000 and 5,500 m, in areas of steep and broken rocky slopes that support shrub, grass, or steppe vegetation. On the northern limits of their range in Mongolia and Russia they may use elevations as low as 600 m in hilly, and occasionally occur in forested habitat. Rangewide, population estimates vary from 4,500 to 7,500.

Snow leopards are widely distributed in the mountains of western Mongolia and occur in the Altai Mountains, the Khangai Mountains, the Hanhoohy Uul and Harkhyra ranges, and in isolated mountainous sections of the Trans-Altai Gobi (Figure 1). They are thought to occur in up to 10 aimags and 107 soms with a total range of about 100,000 km². Population estimates vary from about 800 to 1700 animals. Highest densities are thought to be in the South Gobi, Central Trans-Altai Gobi, and Northern Altai. Remnant populations occur in the Khangai and possibly Khovsgol, although no leopards have been sighted in the latter since the 1960s.

PRINCIPAL THREATS:

a) Poaching

Despite being afforded complete protection in Mongolia, illegal hunting is a problem of unknown magnitude. Although the illegal kill has been estimated at more than 100 animals per year, there is no clear method for calculating more than a minimum estimate. There are two primary incentives for poaching; for trade, and in retribution for livestock depredation.

Poaching for commercial reasons may well be on the rise as trade with China increases, particularly at border stations where law enforcement is more difficult. The value of snow leopard bones on the Asian medicinal market will likely continue to make this an attractive activity for poachers and traders. An increasing demand for pelts in Eastern Europe may also be driving up prices up for snow leopard hides in Russia.

Killing of snow leopards by herders who have experienced livestock losses is difficult to quantify and it is likely that only a small fraction of kills are made known to authorities. Snow leopards are more likely to kill horses, yaks, and camels than small livestock because large stock is often allowed to roam freely in areas where leopards occur. The economic impact of snow leopard depredation can thus be substantial to an

individual herder, despite the fact that overall, herders lose a very small percentage of their herds to the cat. Snow leopards are not easily hunted in the wild, but can be relatively easy to shoot or trap when they are on livestock kills. Because most herding in snow leopard range is conducted far from towns, kills of the cat are rarely reported to or discovered by authorities.

b) Habitat Fragmentation

Snow leopards exhibit an extremely patchy and fragmented distribution, which may reduce genetic interchange and thus diminish long-term population viability. Within Mongolia this is particularly true with isolated populations in the Khangai, Great Gobi, South Gobi, and other sites. The potential to further fragment snow leopard habitat exists as herding in remote area increases.

c) Wild Prey Loss

Competition with domestic stock and poaching are causes for decline in ibex (*Capra ibex*) and argali (*Ovis ammon*), the two primary wild prey species for snow leopards. Marmots are also an important prey item that is also known to be decreasing in several areas due to excessive hunting. As wild prey declines the ability of the areas to support snow leopards is reduced, and cats numbers will likely fall. Loss of wild prey can also lead to increased depredation on domestic livestock and more human- snow leopard conflicts.

d) Disease

Reports of a mange-like skin disease come from the western aimags where some snow leopards have apparently died from the affliction.

CONSERVATION GOALS:

Snow leopards are a symbol of wilderness and much that is great about Mongolia. They are worthy of conserving for this and future generations. To maintain healthy and sustainable populations of snow leopards in Mongolia it is necessary to:

- Ensure that adequate and representative areas are placed into protected status across the range of snow leopards in Mongolia.
- Enact and enforce national laws, statutes and regulations to protect snow leopards and their prey, and their habitat from degradation.
- Abide by and enforce pertinent international conservation laws and conventions to which Mongolia is a signatory.
- Establish and maintain a snow leopard population monitoring program and database.
- Educate citizens and visitors about conservation issues, and when appropriate, emphasize concerns regarding snow leopards and other endangered species.
- Educate the public and government on the cultural, ecological, and financial values to the country of a healthy snow leopard population.
- Strive to reduce snow leopard-human conflicts, particularly in protected areas and other areas where snow leopards are abundant.

MANAGEMENT AUTHORITY:

The Mongolian Law on Environmental Protection delegates authority for management of wildlife to the State Administrative Central Organization in charge of nature and environment, which is the Ministry for Nature and Environment (MNE). Pursuant to the Constitution of Mongolia all wildlife is the property of the State.

RELEVANT MONGOLIAN LAWS:

The Law on Special Protected Areas 15 November 1994
The Law on Environmental Protection, 30 March 1995

The Hunting Law, 10 April 1995

STAKEHOLDERS

National:

Ministry for Nature and Environment (MNE)
Mongolian Association for Nature and Environment (MACNE)
Mongolian Academy of Sciences
World Wide Fund for Nature – Mongolia (WWF)
Mongolian Hunting Organization

International:

International Snow Leopard Trust, USA (ISLT)
Wildlife Conservation Society, USA (WCS)
David Shepherd Conservation Foundation, UK (DSCF)
Peace Corps – Mongolia (PC)

CURRENT STATUS AND ACTIONS TO BE TAKEN:

The factors currently pose a threat to snow leopard conservation in Mongolia can be divided into the following three broad categories. Each condition may be further refined into a list of problems that could be remedied by specific actions. A working group consisting of stakeholders in snow leopard conservation has taken the following list of situations and developed a table of problems and actions to be taken. The table includes the agency or organization responsible for implementation and suggested supportive entities. The table is included in Appendix 2.

1. Legal Issues

Situation - It is currently illegal to hunt, trap, or sell the hide, fur or any other part of a snow leopard (Law on Hunting, Article 4). However, there is no legal restriction on purchasing, owning or possessing snow leopard parts. Actions are required to amend existing law, or enact laws or statutes that make purchase of snow leopard parts illegal, and ownership of snow leopard parts from animals killed after the enactment of the current hunting law (1994) illegal. The law should require that all legally owned snow leopards hides and skulls be registered with the State.

Situation - There is no method to monitor or register existing legally owned snow leopard parts. Actions are required to register all hides and skulls currently owned by government, economic entities, or individuals.

Situation - The current penalties are inadequate to deter violations of the hunting law. The Animal Fund values a snow leopard at 80,000 Tugrogs (about \$ 75 USD) and the fine for illegal kill would be double that, or about \$150 USD. Hides can easily bring \$300 in Mongolia and perhaps 10 times that outside. Bones can bring \$xx/kg. Hence, there is very little deterrent in this fee structure. The basic fine schedule is included in the Hunting Law itself and cannot be amended. However, the penalty for illegal take of an animal includes both the basic fine and compensation to the Animal Fund. Compensation to the Fund is based on the current value of the animal to the State. The value needs to be reviewed annually and sufficiently higher than the market value of the animal parts to deter poaching. Market value can be determined through consultation with international entities that monitor trade in wildlife, such as TRAFFIC.

Situation - Detection of snow leopard poaching and violations of other environmental laws is difficult in remote areas, particularly outside of Protected Areas. Augmentation and training of rangers and nature wardens is a focus of other programs and beyond the scope of this plan. Actions are required to advertise

existence of the Whistle-blower provision of the Hunting Law. Article 28 of the Hunting Law allows for citizens who report violations to be rewarded with 15% of the imposed fines. There is not now a provision for anonymity of informants. The legal assurance of granting anonymity must be explored.

Situation – Snow leopard hides and bones are valuable on Asian and European black markets. Although Mongolia acceded to CITES in 1994, and customs agents and border guards have received training on enforcement, illegal trade in snow leopard parts occurs and can be expected to increase. Information on the numbers of confiscated hides is not easily obtained and makes monitoring of the problem difficult. Snow leopard trade data and enforcement should be strengthened

Situation – Many Mongolians and visitors remain unaware of national and international laws regulating the sale and export of snow leopard parts. Hides are routinely offered for sale to tourists in Ulaanbaatar as well as in the countryside and an unknown number of hides illegally leave the country each year. Actions are required to continue and expand on the informational campaign for both visitors and nationals.

2. *Monitoring of Snow Leopard Distribution and Abundance*

Situation – The status of snow leopard population levels in Mongolia must be monitored over time and between areas to detect changes in numbers and to determine the effectiveness of conservation efforts. The Law on Environmental Protection established the Environmental Information Databank, which requires annual input on observations, measurements and research on wildlife. Meeting scientific needs and monitoring requirements for snow leopards is difficult due to their secretive habits and remote habitat. Monitoring snow leopards numbers requires training and use of standardized techniques. The International Snow Leopard Trust (ISLT) has developed the Snow Leopard Information Management System (SLIMS) which includes field techniques and data storage procedures for snow leopard surveys. Many Mongolian biologists have been trained in the SLIMS techniques during two seminars and field training sessions in 1994 and 1998. SLIMS is now being used in most protected areas where snow leopards occur to monitor population trends of leopards and large prey (ibex and argali). SLIMS training in Mongolia has been facilitated by MNE, UNDP, MACNE, WWF, ISLT and WCS. At the International Snow Leopard Symposium in Xining, China in 1992. MACNE, with the endorsement of MNE, agreed to be Mongolia's cooperating entity and to host the SLIMS database in Mongolia. ISLT currently funds the upkeep of the database, and the salary and field costs of a Mongolian Snow Leopard Conservationist who works directly for MACNE.

Situation – The distribution of snow leopards has been described by various researchers in recent years. An accurate map of current range and a schedule of surveys to monitor changes in presence/absence and relative density are required.

Situation - Many areas of high density snow leopard populations and important dispersal and travel corridors occur outside of the existing Protected Area System. Degradation of range, particularly important dispersal and travel corridors, may result in further fragmentation of Mongolia's snow leopard population leading to small isolated populations and reduced viability.

Results of snow leopard and prey surveys should be used to identify important habitats that are worthy of consideration for reserve status.

Situation – Large prey species, including ibex and argali, are the subject of surveys conducted by various agencies. As with snow leopard surveys, an effort should be made to avoid duplication of effort yet meet the needs of each agencies conservation programs.

Situation – Population monitoring for both snow leopards and their prey are designed to provide area-specific population trend data. Prompt reporting of downward trends to the management authority is required of the monitoring entities.

Situation – Mongolia is bordered by two other snow leopard containing states, Russia and China. The NW corner of Mongolia is situated in what may be an important travel corridor providing linkages to Chinese, Russian, and Kazakh snow leopard populations. Several areas of important snow leopard habitat in Mongolia are near international borders and the potential for trans-boundary protected areas exist. Actions are required to establish formal links with Chinese and Russian agencies, land managers and snow leopard biologists in border areas to facilitate information exchanges and cooperative management ideas.

Situation – Potential exists for disease related reductions in snow leopard numbers and some cats are known to have died from a skin disease in recent years. Efforts are required to secure tissue samples from any snow leopard thought to have died from or be infected by disease and consult veterinarian to determine what if any measures should be taken to reduce spread of the disease.

3. People and Snow Leopards

Situation – Currently only a small percentage of snow leopard range in Mongolia is under some form of protected status. However, in several protected areas the various restricted use zones (Pristine, Conservation, Limited Use, Travel and Tourism Zones) have yet to be fully defined and regulations on use enforced. Hence, people and livestock remain a component of even Strict Protected Areas and conflicts with predators, including snow leopards, occur. Herders face economic hardship due to depredation.

Situation – Snow leopards take more horse, yak, and camels than other domestic stock because large stock tends to be grazed in mountainous areas without protection by herders. Small stock is taken less often but occasionally losses can be substantial when leopards enter corrals at night. Research are required to identify alternative livestock protection methods and information disseminated to herders. Information exchange could be sought with other Central Asian states where depredation is also a problem to determine best practices.

Situation – Various entities have produced environmental education materials that pertain directly to snow leopard conservation and initiated their use in Mongolia including ISLT, the WCS, WWF, UNDP, GTZ and others. A review of available materials and programs will be required and a comprehensive snow leopard conservation education program needs to be developed and made available.

APPENDIX I

**RESOLUTION CONCERNING THE
CONSERVATION OF SNOW LEOPARDS IN MONGOLIA**

A meeting titled "Snow Leopard Conservation Management Plan for Mongolia and Legal Issues" was held at Naramdol Camp outside Ulaanbaatar on 4-5 December 1999. The meeting was facilitated by WWF-Mongolia with support from the David Shepherd Conservation Foundation and the International Snow Leopard Trust. The conference was attended by delegates from:

The Nature Conservation Agency (NCA),
The Endangered Species Commission (ESC),
The Mongolian Association for Conservation of Nature and Environment (MACNE),
The Biological Institute of the Mongolian Academy of Science,
The Biological Faculty of the Mongolian State University,
World Wide Fund for Nature - Mongolia (WWF-M),
The David Shepherd Conservation Foundation, Surrey, UK (DSCF),
The International Snow Leopard Trust, Seattle, USA (ISLT),
German Technical Cooperation (GTZ) - Mongolia,
Peace Corps - Mongolia,

who discussed this draft of the management plan and agreed to the following recommendations and cooperative implementation.

The undersigned, acting on behalf of the respective authorities named above,

Recognizing that the snow leopard (*Uncia unca*) is valuable component of the Mongolian ecosystem and of special interest worldwide; and that it is listed in the Mongolian Red Book as Very Rare, and in the IUCN Red Data Book as Endangered, and on Appendix I of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES);

Aware that Mongolia harbors a large portion of the world's population of snow leopards;

Aware that snow leopards are threatened by illegal hunting in retribution for livestock depredation, and for the sale of their hides and bones, and that the market for snow leopard parts is increasing;

Aware that snow leopard and prey habitat is fragmented and under pressure by grazing, and that only a small portion is currently protected;

Recognizing that sound and comparable scientific data on snow leopard and prey distribution, abundance, and population trends are essential for proper management;

Acknowledging that cooperation among agencies and organizations responsible or concerned with snow leopard conservation is essential to prevent the decline of snow leopard numbers in Mongolia;

AGREE to work together on conservation actions to maintain healthy and sustainable populations of snow leopards in Mongolia.

To that end they shall strive to;

- Establish and maintain a snow leopard and prey species population monitoring program and database with free and open exchange of information among all parties;
- Ensure that adequate and representative areas across the range of snow leopards in Mongolia are included in the protected area system;
- Enact and enforce national laws, statutes and regulations that are sufficient to protect snow leopards, their prey, and their habitat from degradation;
- Enforce pertinent international conservation laws and conventions to which Mongolia is a signatory;
- Educate citizens and visitors about conservation issues, and when appropriate, emphasize concerns regarding snow leopards and other endangered species;
- Educate the public and government on the cultural, ecological, and financial values to the country of a healthy snow leopard population;
- Reduce snow leopard-human conflicts, particularly in protected areas and other areas where snow leopards are abundant;

The participating organizations agreed to this resolution which includes a plan of activities attached as Appendix 1. The resolution shall remain in effect indefinitely, subject to the right of any party to terminate its participation with due notice.

A committee will be assigned from among the signatories to review progress toward the above goals and will report back annually to all signatories. On behalf of the respective authorities:

for the Ministry of Nature and Environment

for the Nature Conservation Agency

for the Endangered Species Commission

for the Biological Institute of the Academy of Sciences

for the Biological Faculty of the Mongolian State University

for The Mongolian Association for Conservation of Nature and Environment

for World Wide Fund for Nature – Mongolia

for the David Shepherd Conservation Foundation

for the International Snow Leopard Trust

for the German Technical Cooperation

for the Altai Tavan Bogd SPAs

For the U. S. Peace Corp – Mongolia

The signed document is only prepared in Mongolian language is attached to this document

Дэлхийн байгаль хамгаалах сангийн Монгол дахь товчооноос 1999 оны 12-р сарын 4, 5 -нд Найрамдал зусланд зохион байгуулсан "Монгол орны ирвэсийг хамгаалах менежментийн төлөвлөгөө, хууль эрх зүйн асуудлууд" сэдэвт уулзалт ярилцлагад Монгол Улсын Байгаль Орчны Яам, БОЯ-ны Байгаль хамгаалах алба, Ховор амьтныг хамгаалах үндэсний комисс, Дэлхийн байгаль хамгаалах сангийн Монгол дахь товчоо, Монголын байгаль орчныг хамгаалах холбоо, ШУА-ийн биологийн хүрээлэн, Монгол улсын их сургуулийн биологийн факультет, Олон улсын ирвэс хамгаалах сан, Давид Шефхердийн байгаль хамгаалах сан, Германы техникийн хамтын ажиллагааны нийгэмлэг, АНУ-ын Энх- тайвны корпус, Их говь, Монгол Алтайн нуруу, Увс нуурын ай савын дархан цаазат газрууд зэрэг байгууллагуудын төлөөлөгчид оролцож монгол орны ирвэсийг хамгаалах менежментийн төлөвлөгөөний төслийг шүүн хэлэлцээд энэхүү зөвлөмжийг гаргаж гүйцэтгэн хэрэгжүүлэхээр тогтов. Уулзалтыг зохион байгуулахад Давид Шефхердийн байгаль хамгаалах сан, Олон улсын ирвэс хамгаалах сан дэмжлэг үзүүлэв.

Тэмдэглэх нь: Дэлхий дахь ирвэсний хорь гаруй хувь нь Монгол оронд амьдардаг бөгөөд ирвэс уулархаг нутгийн экосистемд онцгой ач холбогдолтой, дэлхийд ховордсон, дэлхийн байгаль хамгаалах холбоо /IUCN/ болон монгол улсын улаан ном, зэрлэг амьтан, ургамлын аймгийн ховордсон зүйлийг олон улсын хэмжээнд худалдаалах тухай /CITES/ конвенцийн 1-р хавсралт, Монгол улсын ан агнуурын хуулийн нэн ховор амьтдын жагсаалтанд бүртгэгдсэн.

Гэвч зарим малчид ирвэсэнд малаа идүүлсэний улмаас харуусаж, түүнчлэн арьс мэтийг нь худалдаж ашиг олох зорилгоор хулгайгаар агнасаар байгаа, үүнийг зохицуулах хууль эрх зүйн актууд боловсронгуй бус, хуулийн хэрэгжилт дутмаг, мөн ирвэсний эзэмшил нутаг малын бэлчээртэй давхцаж амьдрах орчин нь хомсдсонтой уялдан уян хатан менежментийн үйл ажиллагаа явуулах шаардлага гарч байна. Хамгаалах арга хэмжээнүүдийг зөв хэрэгжүүлэхийн тулд ирвэс, түүний идэш тэжээл бологч амьтдын тархалт, тоо толгой, популяцын өсөлт бууралтын тухай тодорхой, харьцуулан жишиж болохуйц арга зүйгээр цуглуулсан мэдээ материалыг төвлөрүүлэн мэдээллийн бааз байгуулах, харилцан солилцож байх механизмыг бий болгож, ирвэсний тоо толгой буурч болзошгүй байгааг анхаарч хамгаалах ажлыг хариуцан хийдэг, үүнд оролцдог байгууллагуудын хамтын ажиллагаа, уялдаа холбоог чухалчлах нь зүйтэйг харгалзан Монгол орны ирвэсийг хамгаалахаар доорхи ажлуудыг хамтран хийж гүйцэтгэхээр тохирлоо. Үүнд:

- Ирвэс, түүний идэш тэжээл бологч амьтдын мониторингийн хөтөлбөр боловсруулж, мэдээллийн санг бий болгон оролцогч байгууллагууд хоорондоо мэдээллийг байнга чөлөөтэй солилцож байх
- Монгол орны ирвэсний гол тархац нутгууд улсын тусгай хамгаалалттай газар нутгийн сүлжээнд багтсан эсэхийг судлах, шаарлагатай бол хамгаалалтанд авах үндэслэлийг боловсруулж шийдвэрлүүлэх
- Ирвэс, түүний идэш бологч амьтад, тэдгээрийн амьдрах орчныг хамгаалахтай холбогдсон хууль тогтоол, дүрэм журмыг боловсронгуй болгож, хэрэгжилтийг сайжруулах
- Монгол улсын нэгдэн орсон конвенци, олон улсын байгаль орчны чиглэлийн хуулиудыг чанд мөрдөн

сахиулах

- Байгаль, ялангуяа ирвэс болон бусад нэн ховор амьтан ургамлын зүйлийг хамгаалахын ач холбогдлыг нутгийн иргэд, аялагч жуулчдад ухуулан ойлгуулах
- Ирвэсийг хамгаалах нь экологи, эдийн засаг, түүх соёлын хувьд ямар ач холбогдолтойг төр засаг, олон нийтэд ухуулан таниулах
- Ирвэс элбэг тархсан газрууд дахь ирвэс хүн хоёрын хоорондын зөрчлийг багасгах

Энэхүү баримт бичигт оролцогсдын зөвшөөрч гарын үсэг зуран баталгаажуулсан ажлын төлөвлөгөөг хавсаргав \Хавсралт 1\.

Оролцогч тал энэ чиглэлд хүлээн зөвшөөрсөн үүргээ биелүүлэх бололцоогүй болсоноо бичгээр мэдэгдсэнээр гүйцэтгэх үүрэг нь дуусгавар болох бөгөөд энэ нь бусад талуудад хамаарахгүй.

Байгууллагуудын төлөөлөгчдөөс бүрдсэн ажлын хэсэг жил бүр ажлын явцыг хэлэлцэж, тайланг оролцогч байгууллагуудад илгээж байна.

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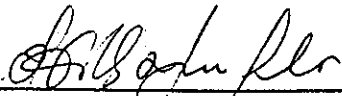
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БОЯ-ны Байгаль Хамгаалах Алба

Ховор Амьтныг Хамгаалах Үндэсний Комисс

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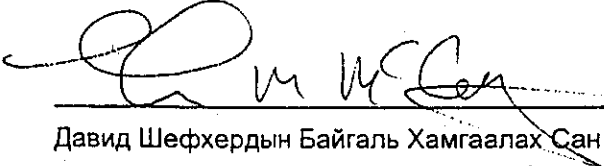
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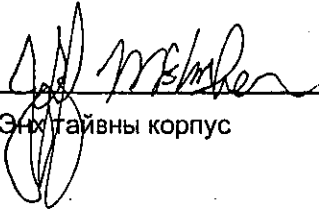
Монголын Байгаль Орчныг Хамгаалах Холбоо



Олон Улсын Ирвэс Хамгаалах Холбоо



Давид Шефхердын Байгаль Хамгаалах Сан



АНУ-ын Эмтэйвны корпус

Германы Техникийн Хамтын Ажиллагааны Нийгэмлэг



МУИС-ийн Биологийн факультет



Монгол Алтайн нурууны УТХГ -ын захиргаа

Их говийн дархан цаазат газар

Увс нуурын ай савын дархан цаазат газруудын захиргаа



Агнуур судлалын "Аргаль" төв

APPENDIX 2

Research and Monitoring

N	Problem	Action	Responsible Organization	Supporting organizations		
1 *	There is no comprehensive snow leopard database	Create comprehensive database	MACNE	Rare Animal Commission		
		Setup data exchange system		WWF ISLT		
		Collect data from hunting, research, and conservation organizations		Educational and scientific organizations		
2 ** *	There has been insufficient research on snow leopard prey species	Consolidate snow leopard diet information	MACNE	WWF, ISLT, DSCF		
		Consolidate existing data on SL prey			NCA	
		Determine threats to SL prey	Academy of Science			
		Continue ibex density studies			Protected Areas	
3	Knowledge of snow leopard disease is lacking	Develop methodology for rangers to collect field samples	Academy of Science	NCA, WWF, MACNE		
		Collect samples from countryside	Academy of Science			
		Submit samples to national and international vets for disease study			Ministry of Nature, local Protected Areas	
4	Lack of information exchange about snow leopard with neighboring countries	Establish contact with Russian and Chinese organizations and SL researchers	MACNE	MACNE, ISLT, WWF		
		Initiate data exchange with foreign organizations and researchers			ISLT, WWF, NCA, Mongolian State University	
5 **	SLIMS methodology needs to be more widely taught	Translate SLIMS handbook and data-forms		Universities,		WWF, MACNE, DSCF
		Train trainers				
		Conduct training				
6	There are an inadequate number of snow leopard researchers in Mongolia	University will encourage BSc and MSc students to study SL.				
		Provide students with practical field experience in ongoing research programs				
		Invite SL experts to speak at universities				

7 ** **	Snow leopard depredation on livestock needs to be researched	Annually collect data from some governments and statistical agencies on depredation.	MACNE	NCA, various international projects
		Establish method for determining cause of livestock death		
		Identify local experts that can verify depredation information reported by herders		
		Provide rangers with depredation data forms for consistency of information	Protected Areas	
		Collect depredation data from herders by interviews		

Snow leopard – human conflicts

N	Problem	Action	Responsible Organization	Supporting organizations
1a *	Water resources are limited, forcing humans and wildlife to use same areas, conflicts occur.	Important snow leopard habitat placed in Protected status	MNE, NCA	WWF, DSCF
		Develop tiered management system outside protected areas	MNE	DSCF, Academy of Science, other scientific organisation
1b *	Protection for snow leopards is difficult outside of Protected Areas	Implement tiered management system	MNE	DSCF
2 **	Herders suffer economic hardship due to depredation by snow leopards	Establish economic incentive programs appropriate to different areas or management zones	MACNE	DSCF, ISLT, WWF
		Research methods to improve herding ability of dogs		
		Advertise better herding methods		
3 ***	Lack of education and public awareness about snow leopards	Prepare comprehensive education program on SL using existing sources	NCA, MACNE	Working group from WWF, MACNE. Peace Corp
		Make materials available to local school or agencies		

4 ** **	Protected Area Management is insufficient	Make zonal management within reserves reflect ecological situation, inform locals	NCA	Academy of Sciences, MACNE, WWF
		Sign-post zones		
		Advise Protected Areas about snow leopards for management planning	WWF, MACNE	ISLT, DSCF

Legal issue

N	Problems	Action	Responsible Organization	Supporting organizations
1 *	No law exists regulating purchase, ownership, or exchange of snow leopard parts	Improve the law	MNE	NGOs
		Conduct pilot registration program of SL hides	NCA	WWF
		Conduct country-wide registration of hides	NCA, local inspection agencies	NGOs
2 **	Penalty is insufficient to deter violations.	Review the ecological value of SL used to establish fine, and revise annually	MNE	Academy of Science, International Agencies
		Assure that ecological value reflects legal status of SL (RED Book, IUCN, etc)		
3	Detecting violations outside protected areas is difficult	Assure anonymity of whistle-blowers	MNE	Police
		Advertise whistle-blower law	MNE, MACNE, WWF	
4 ***	Public knowledge of nature laws is limited	Improve advertisement of nature laws	MNE	Police
5 ***	Lack of cooperation between police, customs, and other agencies on enforcement and information exchange	Agencies cooperate on enforcing trade laws (CITES)	MNE, NCA	Police, Customs
		Establish mechanism to exchange information regarding illegal trade		
		Maintain all confiscated hides and parts at a scientific organization		

Acronyms used

DSCF - David Shepherd Conservation Foundation

ISLT - International Snow Leopard Trust

MACNE - Mongolian Association for Conservation of Nature and Environment

MNE - Ministry for Nature and Environment

NCA - Nature Conservation Agency

WWF - World Wide Fund for Nature, Mongolia

Priority of Problems - * Highest Priority, ** 2nd Highest, *** 3rd Highest, **** 4th Highest, other problems without symbol were of lower than 4th priority but are unranked.

APPENDIX 3.

Tiered Management System

General description of a Tiered Management System within snow leopard range that encourages people to voluntarily limits their use of certain areas. Such a system could have three Levels:

Level 1 - Provides complete protection to snow leopards. No leopards would be removed, including cats known to depredate on livestock. No economic compensation or incentives would be provided to herders who lose livestock to predators within these areas. This Level would include the Pristine and Conservation Zones of all Strict Protected Areas and the Special Zone of National Conservation Parks (Appendix 2).

Level 2 - Provides complete protection to snow leopards. No leopards would be removed, including cats known to depredate on livestock. Herders who legally use this area must agree to certain grazing conditions and tolerate losses to snow leopards in exchange for establishment of an economic incentive program (see Appendix 3, Irbis Enterprises) or compensation for losses. This Level would include the Limited Use and Buffer Zones of Strict Protected Areas (when permits have been granted), all National Conservation Park lands except for their Special Zone, and Nature Reserves classified as Ecological or Biological Reserves. It would also include lands that fall outside of protected areas but have been designated by MNE as Important Snow Leopard Habitat or snow leopard travel corridors. Identification of such habitat would come from SLIMS survey results and other research. (Note - although livestock husbandry is allowed by law in all areas listed in Level 2 lands, it would be undertaken at the herder's own risk).

Level 3 - Provides for the removal of depredating snow leopards by government agents after confirmation of a problem. This Level would include all lands that have not been identified as Important Snow Leopard Habitat or travel corridors by MNE and that fall outside of reserves, or within Paleontological or Geological Reserves, and Natural Monuments.

Tiered Snow Leopard Management System for various Mongolia land categories within snow leopard range.

Land Category	Management Status		
	Level 1	Level 2	Level 3
Strict Protected Area			
Pristine Zone	X		
Conservation Zone	X		
Limited Use Zone ^a		X	
Buffer Zone		X	
National Conservation Park			
Special Zone	X		
Travel and Tourism Zone		X	
Limited Use Zone		X	
Buffer Zone		X	
Nature Reserves			
Ecological or Biological Reserves		X	
Paleontological or Geological Reserves ^b			X
Monuments			
Natural Monuments ^b			X
Historic or Cultural Monument ^b			X
Important Snow Leopard Habitat and Corridors ^c		X	
All Other Snow Leopard Range			X

^a When livestock grazing is legally allowed by permit.

^b Unless identified as Important Snow Leopard Habitat or Corridors

^c As designated by MNE after identification by research and surveys.

APPENDIX 4.

IRBIS ENTERPRISES - Local Enterprise giving Herders Incentive to Protect Snow Leopards

IRBIS ENTERPRISES is a coalition of Mongolian and international nature conservation organizations and Protected Areas. The aim of IRBIS ENTERPRISES is to provide alternative income sources to herders who live in snow leopard habitat. The income source is hand-crafted items produced by the herders and made primarily from livestock products such as sheep, camel and cashmere wool, leather, sheepskin and felt. The finished goods are marketed to tourists in the capital, Ulaanbaatar and abroad through fair trade outlets. The majority of the sales price is returned to the producers and a percentage is placed into a Conservation Fund. The proceeds from the fund can be used for such needs as improving water sources in the buffer zone, an effort that can benefit both herders and wildlife.

Summary of benefits:

- Links income generation to wildlife friendly herding practices.
- Increased income for herders.
- Increased awareness among herders of the value of the protected area.
- Potential for generating a fund for conservation projects.
- Spreads information about Mongolian wildlife issues to an international tourist public.

To protect snow leopards and their mountain ecosystem grazing limitations must be imposed, predation by leopards on livestock must be reduced or tolerated, and poaching of leopards and their prey must stop. For herders who have used those areas for generations, such limitations cause resentment and a lack of cooperation. "IRBIS ENTERPRISES" aims to overcome this by offering herders an incentive to play a positive role in the conservation of snow leopards.

The project was initiated in response to herder concerns about prices for their raw livestock products (sheep, cashmere, camel wool and hides). Distance from markets make herders dependent on passing traders. This project offers the opportunity for herders to make finished products which adds enormously to the value of the raw materials. Herders work under contracts that specify no poaching of snow leopards, or their main prey species, tolerance of stock losses to predation by snow leopards, avoidance of critical lambing and kidding sites of wild ungulates, and reduction or stabilization of herd sizes.

An annual bonus of 20% is payable if all contract conditions have been met, and forms the most immediate link between income generation and wildlife conservation. The entire community will lose the bonus if one herder illegally kills a snow leopard, ibex or argali, thus individual incentive is enhanced by peer pressure. Individual producers will lose bonuses for other violations of wildlife laws or grazing regulations in the Protected Area Buffer Zones. The project also offers less tangible but important conservation linkages such as fostering a positive perception of the Protected Area, greater appreciation of the international interest in local wildlife, and increased awareness of wildlife issues in general.

More than 100 households in Gobi-Altai and Uvs participated in the first year of the project and nearly 2,500,000 Tugrogs (\$2,500 USD) was distributed. Expansion to several new areas is planned for 2000. The project has received interest and praise within Mongolia and internationally.

