



**Final Report on the ISLT project**

**“Development of the national Action Plan for the conservation of  
Snow Leopard in Uzbekistan”**

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Tashkent, 2003

### **Implemented Actions:**

#### **Task 1. Assessment of existing information on Snow Leopard and its prey species in Uzbekistan**

- 1.1. Preparation of reference list – it is prepared by E. Vashetko and revised by E. Bykova, A. Esipov. It consists 264 papers on Snow Leopard and its prey species in Uzbekistan and neighboring areas (in Russ.) – See Attachment 1;
- 1.2. Review of the official data: analysis of the reports of Chatkal and Gissar nature reserves, reports of the main department of the hunting management, national parks and nature reserves of the Ministry of Agriculture - data for last 30 years are available – responsible executors A. Esipov, B. Aromov;
- 1.3. Analysis of questionnaire data – there were gathered about 96 records on the Snow Leopard finds and more 100 records about prey species from Ugam-Chatkal national park, Hissar and Zaamin nature reserves, Zaamin national park and their adjacent areas in Pamiro-Alai mountains by A. Esipov, B. Aromov and other members of team – responsible executor E. Bykova; On the results of this survey there was prepared the article (see Attachment 2) and database on Snow Leopard records (see Attachment 3);

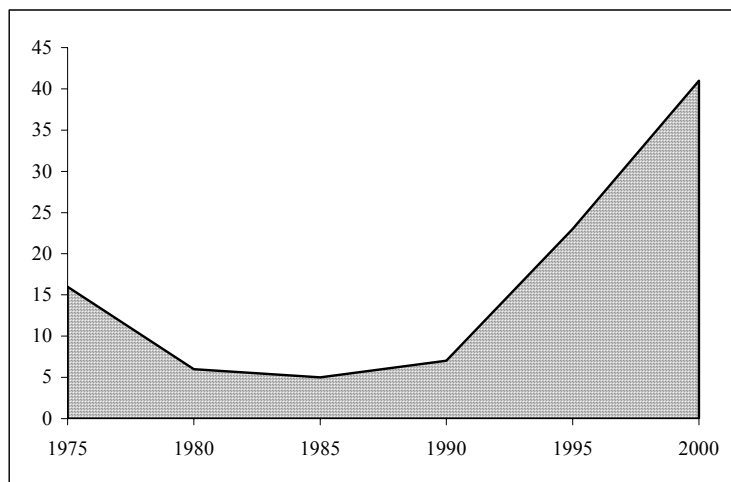


Figure 1. Dynamic of records of Snow Leopard on the analysis of questionnaires data

#### **Task 2. Socio-economic expertise**

- 2.1. Survey and gathering of inquest data – were made in March –May and June-July 2003 by all members of team. There were organized the complex expeditions to Chatkal, Hissar and Zaamin nature reserves, also there were surveyed the areas of Zaamin national park, Maidanak mountains, Ura-Darya river and Sangardak valley (gorge) in the spurs of Gissar range of Kashkadarya and Surkhandarya regions - responsible executor E. Kreuzberg-Mukhina.
- 2.2. Analysis of collected information was prepared for the chapters in Uzbekistan Snow Leopard Conservation Strategy and was presented as PP presentation on the Round Table with discussion of Snow Leopard Conservation Strategy in Uzbekistan.

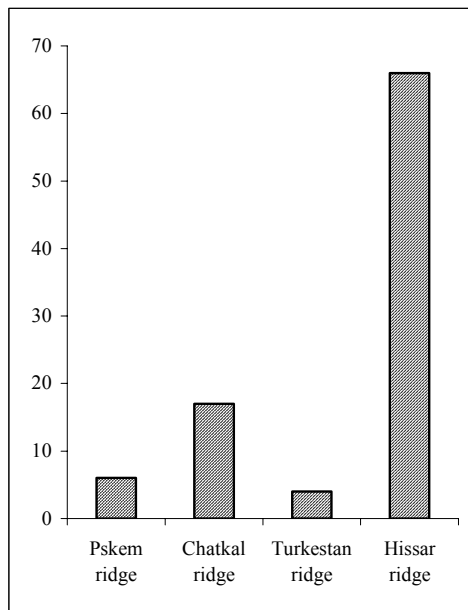


Figure 2. Allocation of the Snow Leopards records in the different regions of Uzbekistan on the questionnaire data

### **Task 3. Environmental legislation**

3.1. Analysis of existing laws. There was made by Mr. Timur Tillaev, lawyer of State Committee of Nature Protection, presented on the Round Table in State Committee of NP on 10 December of 2003 (see Attachment 4);

3.2. Development of proposals for enforcement of legislation – reflected in Snow Leopard Conservation Strategy – responsible E. Kreuzberg-Mukhina (see Attachment 5);

### **Task 4. Education actions**

4.1. Design and printing of student guide – in the process of printing

4.2. Training of teachers – were organized in Parkent and Yakkabag regions near Chatkal and Hissar nature reserve – for the involvement of teachers in the propaganda of Snow Leopard conservation. There were distributed more 200 booklets about Snow Leopard and conservation problems, prepared by members of teams – responsible executors A. Esipov and B. Aromov;

4.3. Concurs in schools were organized in Parkent town, Nevich and Zarkent villages near Chatkal nature reserve and in Yakkabag town, Hissarak and Miraki villages near Hissar nature reserve in April – May 2003, the results of concurs were summarized in October 2003, when the winners from schools were prized in both reserves. About 50 pictures were chosen for exhibitions in Chatkal and Hissar nature reserves - responsible executors A. Esipov and B. Aromov (see Attachment 7);

### **Task 5. Public awareness**

5.1. Round table with stakeholders – there was organized on 10 of December, 33 participants discussed the draft of Snow Leopard Conservation Strategy for Uzbekistan. The draft of Strategy was distributed for review and comments, and for official approval by State Committee of NP (see Attachment 6);

5.2. Presentation of guide for students and teachers was made on Round Table, in Tashkent State University and on the meeting of NGO-s in Chimgan v. on the area of Ugam-Chatkal national park – responsible executors E. Kreuzberg-Mukhina, E. Bykova, A. Esipov;

5.3. Publishing of guide – in process of implementation - responsible executor E. Kreuzberg-Mukhina (see Attachment 8);

### **Task 6. Preparation of the Snow Leopard Conservation Strategy in Uzbekistan**

- 6.1. Elaboration of the Snow Leopard Conservation Strategy in Uzbekistan – prepared for discussion in December 2003 - responsible executors E. Kreuzberg-Mukhina, E. Bykova, A. Esipov, B. Aromov, E. Vashetko, editors – D. Azimov, E. Chernogaev;
- 6.2. Official recognition: formally the draft of Snow Leopard Conservation Strategy in Uzbekistan was approved on the meeting by 10 December, 2003, and after receiving of comments in the beginning of January 2003 should be signed by State Committee of Nature Protection; The State Committee will support the publishing of text of strategy as special edition on 3 languages in 2004 – responsible executor – E. Kreuzberg-Mukhina; approval by State Committee of Nature Protection.
- 6.3. Base for the implementation of Snow Leopard Conservation Strategy in Uzbekistan;

### **Task 7. Preparation of the report**

#### 7.1. Project report preparation

The preparation of report was implemented after round table on the discussion of Snow Leopard Conservation Strategy held by December 10, 2003. The final report preparation was delayed owing to objective causes – late discussion of Snow Leopard Conservation Strategy. From August to November State Committee was under revision, in the result of which the leadership was changed in the second half of November, therefore the discussion of Snow Leopard matters was conducted after all these events. It is the first precedent when the species conservation strategy was discussed and approved at the national level. It is necessary to note that all efforts on preparation of Strategy were taken very friendly by all main stakeholders in Uzbekistan – officers of different departments of State Committee of Nature Protection, representatives of official; structures – Ministries, projects, etc., scientific community – Academy of Science, National University, environmental NGO-s, mass-media and, of course, by staff of protected areas. It was underlined the opportuneness of this proposal and its accordance to the priorities of the National Strategy of Biodiversity Conservation (1998). Interested participants of the meeting on the discussion of SLCS expressed the kind intention to make the contribution into reviewing and comments to the text of Strategy.

Taking into account that the full text of report with all attachments and PP presentations has occupied the significant volume, there was made the CD-version of report, which includes all parts of report with appendixes and 2 versions of Snow Leopard Conservation Strategy – in Russian and in English.

1. Upgrade of computers: - 875 US\$ - there were upgraded computers (E. Kreuzberg and E. Vashetko), and printer (A. Esipov).
2. Days of the parks and concurs – 400 US\$ - 200 + 200 (A. Esipov, B. Aromov);
3. Field surveys + inquest information gathering – 2308 US\$ (A. Esipov, E. Kreuzberg, E. Bykova, B. Aromov) (rent of cars, fuel and daily allowances);
4. Communication expenses – 500 US\$ (A. Esipov + E. Bykova, E. Kreuzberg, E. Vashetko, B. Aromov);
5. Stationary (films, paper, diskettes, etc.) – 150 US\$ ( all team);
6. Cartridges – 140 US\$ (all team);
7. Preparation of meetings and round table – 150 US \$;
8. Films + diskettes, CD – 150 US\$;
9. Reporting – 300 US\$;
10. Cashing of bank money – 25 US\$;

#### Local contribution:

1. Office for the round table was presented by State Committee of Nature Protection;
2. Equipment use – computers, printers, scanners, ICL-projector – property of members of project

Subtotal: 5000 US\$

## **Method of questionnaire design used for the collecting of primary data on threatened species with the example of Snow Leopard**

Bykova, E.A., Esipov, A.V., Aromov, B., Kreuzberg-Mukhina, E.A., Veshetko, E.V.

### **Summary:**

Method of questionnaire design are used for long time successfully in the various fields of zoological research. This method is most significant for the collecting of data on threatened species. It can be applied together with standard inquest and survey methods without taking remarkable financial and temporal expenses. In the result of collecting questionnaire data it is possible to gather additional, often unique, unknown at past information about new places of threatened species distribution, their mode of life, status of food base, existing limiting factors, relations with local human population, etc. On other hand, such data can be assigned as the base for further planning of scientific investigations of the threatened species.

Our experience of collecting of questionnaires data received during implementation of SEN (Sacred Earth Network) project in 2001 and ISLT (International Snow Leopard Trust) project in 2003 allowed to display either indisputable merits of this method either its demerits. In the course of research there were examined 47 respondents. They are workers of protected areas system of Uzbekistan: Chatkal, Zaamin, Hissar nature reserves and Ugam-Chatkal national park, and also local inhabitants living in high mountain villages of Tashkent, Kashkadarya and Surkhandarya districts of Uzbekistan. In the result of this research there were received data from 1975 to 2003, at that the maximum cases of Snow Leopard records were between 1990-2000 (Fig.1). The quantity of Snow Leopard records in the period between 1975-1980 is higher than in the next 10 years, because the special official information from card index of Chatkal reserve was used. On our opinion, such information does not reflect long-term population dynamic of Snow Leopard, and it is more connected with most fresh recollections of people about events of last decade. It confirms the necessity for the regular conducting of questionnaire design, advisably 1 time per year that would allow to receive more thorough comparable materials.

In the result of our survey, there were gathered 96 records of Snow Leopard and its tracks of the vital functions on Ugam, Pskem, Chatkal, Turkestan and Hissar ridges. Majority of records was made on Hissar ridge either on the area of Hissar reserve, either outside of protected area (upper parts of Sahgardak River in Surkhandarya region) (Fig.2).

Thus, in the result of conducted questionnaire design there was collected rather various and extensive material on distribution of Snow Leopard in Uzbekistan, on its territorial and food behavior, cases and causes of poaching. As a conclusion, it seems to be rational to use the method of questionnaire design among rangers of protected areas and local inhabitants for the collecting of primary information on threatened animal species. It would be optimal to gather such data annually that would allow to receive the fresh comparable year by year information. Interpretation of questionnaire data should be made with certain prudence, taking into account subjectivity of collected information. Therefore during gathering of questionnaire data it is desirable personal attendance of researcher for more accurate definition of answers on the presented questions.

## МЕТОД АНКЕТИРОВАНИЯ, ПРИМЕНЯЕМЫЙ ДЛЯ СБОРА ПЕРВИЧНЫХ ДАННЫХ ПО РЕДКИМ ВИДАМ НА ПРИМЕРЕ СНЕЖНОГО БАРСА

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Метод анкетирования давно и успешно применяется в различных областях зоологических исследований. Особую ценность данный метод представляет при сборе информации по редким видам. Он может применяться наряду со стандартными опросными и учетными методами, не требуя при этом больших материальных и временных затрат. Результатом проведенного анкетирования могут быть дополнительные, часто уникальные, нигде ранее не зафиксированные сведения о местах находок редких видов, их образе жизни, состоянии кормовой базы, отношении местного населения, существующих лимитирующих факторах и т.п. С другой стороны данные предварительного анкетирования могут лечь в основу дальнейшего планирования мероприятий по обследованию того или иного участка ареала интересующего вида, поиску ответа на тот или иной поставленный вопрос.

Данный метод давно и широко применяется в исследованиях по охотничье-промысловым видам млекопитающих и птиц (Семенов-Тянь-Шанский, 1963; Исаков, 1963; Юргенсон, 1963 и др.), а так же сбора сведений по снежному барсу (Snow Leopard Information Management System, SLIMS).

Форма анкеты при внешней лаконичности обладает большой информационной емкостью. Простота и четкость поставленных вопросов делает возможным ее использование среди широких слоев населения с различным образовательным уровнем. Анкета легко переводится на различные языки. Анкетируемые сами выбирают язык изложения. В ряде случаев в зависимости от желания респондентов анкетирование может носить анонимный характер.

Собственный опыт анкетирования, проведенный в рамках проектов SEN (Sacred Earth Network) в 2001 г. и ISLT (International Snow Leopard Trust) в 2003 г. позволил выявить как неоспоримые достоинства данного метода, так и его недостатки. К достоинствам можно отнести:

- Получение уникальной информации от населения и сотрудников ООПТ.
- Стандартизация, позволяющая корректно обобщать информацию.
- Дешевизна и широкий территориальный охват при сравнительно небольших временных затратах.
- Повышение информированности и интереса местного населения к вопросам охраны природы, поскольку процесс анкетирования сопровождается разъяснением целей и задач, проводимых исследованием и т.д.
- Пропаганда идей охраны природы; повышение значимости и личной ответственности населения и персонала ООПТ.
- Налаживание контакта с местным населением посредством мероприятий связанных с анкетированием; как результат создание постоянно действующей информационной сети заинтересованных людей (инспекторов, охотников и т.п.).

К недостаткам метода относятся:

- Субъективизм полученных данных.
- «Погоня за результатом», т.е. невольное приукрашивание деталей, например, преувеличение количества хищников, числа жертв и т.д.

- «Боязнь» ведения документации, т.к. некоторых людей отпугивает необходимость заполнения официального документа.
- Недостаточная полнота полученных данных, связанная с тем, что наблюдения сделаны, как правило, неспециалистами. Это приводит к упущению таких деталей как поскребы, фекалии, мочевые метки, лежки и др., свидетельствующих о пребывании зверя.

*Кроме того, анкета, при всем ее удобстве и упрощении ограничивает объем получаемой информации, поскольку в ячейки и строчки фиксированного размера зачастую невозможно уместить множество деталей и подробностей.*

В рамках проводимых нами исследований было подготовлено два типа анкет (см. Приложение). Первая из них содержит вопросы непосредственно связанные со снежным барсом. В ней приводятся стандартные данные, касающиеся прямого наблюдения за хищником, особенностей его поведения, сведения об охоте на снежного барса, а также данные по нападению ирбиса на домашний скот. Вторая анкета представляет собой опросник, позволяющий выяснить состав кормовой базы снежного барса на конкретной территории. Наряду со списком основных жертв снежного барса. Был введен дополнительный список редких и фоновых видов животных, информация по которым представляет определенный интерес. Анкетирование проводилось на узбекском и русском языках.

За время проведения исследования было опрошено 47 респондентов. Это сотрудники ООПТ Узбекистана: Чаткальского, Зааминского, Гиссарского заповедников и Угам-Чаткальского национального парка, а так же местные жители, проживающие в высокогорных кишлаках Ташкентской, Кашкадарьинской и Сурхандарьинской областей.

В результате проведенного анкетирования были получены данные за период с 1975 по 2003 гг., причем наибольшее число случаев встреч снежного барса приходится на 90-2000-е гг. Количество находок снежного барса в период с 1975 г. по 1980 г. выше, чем в последующие 10 лет, т.к. привлекалась ведомственная информация из картотеки Чаткальского заповедника (рис.1.). На наш взгляд эти данные не являются объективным отражением многолетней популяционной динамики снежного барса, а скорее связаны с более свежими воспоминаниями людей о событиях последнего десятилетия. Это подтверждает необходимость регулярного проведения анкетирования, желательно 1 раз в год, что позволяет получать более полный сравнимый по годам материал.

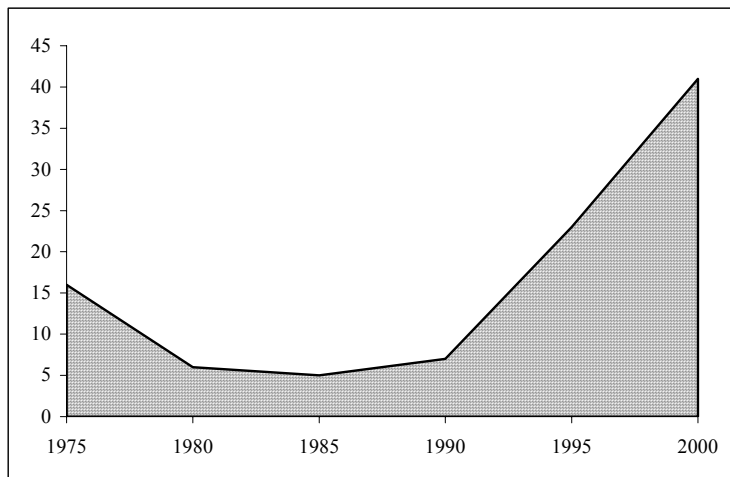


Рисунок 1. Динамика встреч снежного барса в Узбекистане по данным анкетирования.  
Figure 1. Dynamic of records of Snow Leopard on the analysis of questionnaires data

Всего было описано 96 случаев встреч ирбиса и следов его жизнедеятельности на Угамском, Пскемском, Чаткальском, Туркестанском и Гиссарском хребтах. Большинство находок было сделано на Гиссарском хребте: как на территории Гиссарского заповедника так и за его пределами (верховья р.Сангардак, Сурхандарьинская обл.) (рис.2.).

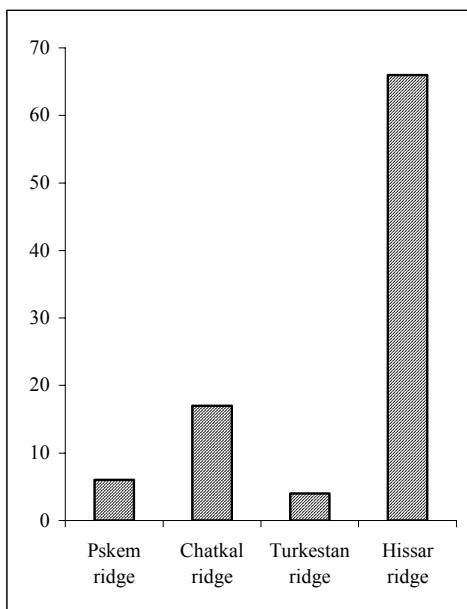


Рисунок 2. Распределение находок снежного барса в различных областях Узбекистана по данным анкетирования  
Figure 2. Allocation of the Snow Leopards records in the different regions of Uzbekistan on the questionnaire data

Эти данные можно рассматривать лишь в качестве косвенного подтверждения более высокой плотности популяции снежного барса в гиссарской части ареала. Однако, было бы неверным делать выводы, о состоянии популяции основываясь только на сведениях, полученных методом анкетирования.

В 23 случаях в анкетах приводится информация о непосредственном наблюдении за хищником во время перемещений и на отдыхе. Для снежного барса характерны переходы преимущественно по линии водоразделов и через горные долины. Отмечены факты, когда снежный барс регистрировался в арчевом лесу. Некоторые наблюдения описывают сцену тропления ирбисом жертвы.

По данным анкетирования было зарегистрировано 30 случаев успешного нападения снежного барса, из них 19 на домашних и 11 на диких животных. Из диких животных отмечено нападение на красного сурка *Marmota caudata* (Geoffroy, 1844) (2 случая) и сибирского горного козла *Capra sibirica* (Pallas, 1776) (9 случаев). Охота не всегда оканчивалась удачей. К примеру, имеются указания на безуспешные попытки нападения на горного козла. Среди домашних животных получены данные по нападению ирбиса на домашних коз и овец (14 случаев), коров (3 случая), а так же описаны факты



нападения на жеребенка и осла. Анкетированные указывают, что количество домашних животных добытых снежным барсом за время одного нападения составляет от 1 до 35 особей. Общее количество добытого домашнего скота составило 110 особей, т.е. в среднем 5,5 особей за время одной успешной охоты. На наш взгляд максимальные цифры сомнительны. Местные жители традиционно преувеличивают опасность, исходящую от снежного барса. Завышение доли домашнего скота в рационе снежного барса объясняется тем, случаи нападения ирбиса на домашних животных никогда не остаются незамеченными, чего нельзя сказать об охоте на диких животных, случаи которой фиксируются местными жителями случайно. Работники охраняемых территорий дают более объективную информацию, т.к. наблюдают диких животных профессионально.

В анкетах приводятся данные о прямом преследовании снежного барса человеком. Из 10 имеющихся указаний, 6 случаев относятся к охоте на зверя ради шкуры или для продажи в частные зоопарки. Реже снежный барс добывается ради личного престижа охотника. В большинстве случаев охотниками являются местные жители. В последнее время получены факты охоты на барса представителями силовых структур. Опрашиваемые описали всего 4 случая, когда барс был убит чабанами в отместку за нападение на скот или в результате самозащиты. При этом сообщалось, что зверь забивался палками. Описан так же курьезный случай, когда пастух «голыми руками» отбирал у барса его жертву. Анализ показал, что в Тяньшанской части ареала ежегодно добывается 3-4 особи снежного барса, на Туркестанском хр. – в среднем 2 особи в год, на Гиссарском хр. в долине р.Сангардак - 1 ос/год. Все случаи добычи ирбиса во время нападения на скот описаны в разные годы из окрестностей Гиссарского заповедника.

Следы снежного барса (25 случаев) чаще отмечаются на снегу независимо от времени года. Несколько находок сделано на влажном грунте у нор сурка. Указывается 3 случая нахождения фекалий снежного барса, причем все находки были сделаны сотрудниками заповедника.

Таким образом, в результате проведенного анкетирования нами был получен довольно разнообразный и обширный материал по распределению снежного барса в пределах республики, его территориальному и пищевому поведению, случаям и причинах браконьерства. Нам представляется рациональным проведение анкетирования среди работников ООПТ и местного населения для сбора первичной информации по редким и ценным видам животных. Проводить анкетирование оптимально не реже одного раза в год, что даст возможность получения свежих сравнимых по годам данных. Интерпретацию анкетных данных нужно делать с определенной долей осторожности, учитывая субъективность полученной информации. В момент анкетирования желательно личное присутствие исследователя для дачи необходимых пояснений и получения уточнений по заполняемому вопросу.

Авторы выражают благодарность администрации Чаткальского и Гиссарского заповедника за помощь в организации анкетирования.

Список использованной литературы:

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Анкета сбора опросных сведений по  
жертвам снежного барса / редким и фоновым видам

Форма 2

**ФИО** \_\_\_\_\_ **род**  
**занятий** \_\_\_\_\_ **дата** \_\_\_\_\_  
**Место**  
**жительства: область** \_\_\_\_\_ **район** \_\_\_\_\_  
**название населенного**  
**пункта:** \_\_\_\_\_

Дайте информацию о пребывании видов-жертв снежного барса:

| вид жертвы   | где | когда | сколько | возраст |      |
|--------------|-----|-------|---------|---------|------|
|              |     |       |         | мол     | стар |
| горный козел |     |       |         |         |      |
| кабан        |     |       |         |         |      |
| сурок        |     |       |         |         |      |
| улар         |     |       |         |         |      |
| кеклик       |     |       |         |         |      |
| другие*      |     |       |         |         |      |

\*укажите вид животного

**Дайте информацию о следующих видах животных:**

| вид     | где | когда | сколько | возраст |      |
|---------|-----|-------|---------|---------|------|
|         |     |       |         | мол     | стар |
| медведь |     |       |         |         |      |
| рысь    |     |       |         |         |      |
| выдра   |     |       |         |         |      |
| волк    |     |       |         |         |      |
| лисица  |     |       |         |         |      |
| пищуха  |     |       |         |         |      |
| заяц    |     |       |         |         |      |

**Minutes Of Round Table on Discussion  
Of Snow Leopard Conservation Strategy in Uzbekistan  
10 December 2003  
State Committee of the Nature Protection**

33 representatives of state and non-governmental organizations participated in the Round Table (List of participants is applied).

D.A. Asimov opened the meeting welcoming participants. He presented the activity conducted in Uzbekistan on implementation of CBD (Convention on Conservation of Biological Diversity) and National Strategy and Action Plan on the conservation of biodiversity.

E.A. Kreuzberg-Mukhina presented the review of the conservation actions on Snow Leopard in the world and in the region.

Questions:

1. Who gathered the data about significant movements of Snow Leopard? Answer: E. Koshkarev in the course of population study in Kyrgyzstan.
2. Who support the activity on the creation of snow leopard conservation strategy? Who are involved in the team on the preparation of strategy, what is the duration of project and who leads the project? Answer: ISLT encouraged the creation of strategy, this organization support the conducting of researches and conservation activity in the countries of the region. In the preparation of strategy 5 people from Snow Leopard team were involved (Bakhtior Aromov, Alexander Esipov, Elena Bykova, Emilia Vashetko), leader of project implementation is Elena Kreuzberg-Mukhina.
3. In presentation there was said that Snow Leopard successfully breeds in captivity. However, the cases of its successful introduction or reintroduction into wildlife are unknown. Natural environment is very severe, and captive bred animals cannot adopt in wildlife, and, perhaps, they can survival after release only feeding by domestic cattle.

O.V. Mitropolsky presented information about activity on the Snow Leopard conservation in Western Tien-Shan.

Questions:

1. For which period of time the information on Snow Leopard was gathered and analyzed in Western Tien-Shan? – Answer: 10 years.
2. During which period of time the marmots are active and can present the diet of Snow Leopard? – Answer: from the end of April till to middle of August (about 5 months). [In presentation there was reported that marmots are one from main source of food for Snow Leopard in western Tien-Shan].
3. How the question of joining of part of Chatkal range in Namangan region of Uzbekistan to Chatkal reserve will be solved, if this is the territory of other region? – Answer: It is necessary to establish the separate protected area in this region, taking into account that till to present no any strict protected areas in Fergana valley where this part is belonged.

T. S. Tillaev presented the report about legislative base for the conservation of threatened species in Uzbekistan. He drawn attention of participants to the fact that in Uzbekistan till to now the special regulation “About Red Book” did not approve by official structures, although it was prepared about 10 years ago. Owing this fact the “Red Book” is not yet the real juridical document and protection of threatened species cannot be regulated.

Questions and presentations:

1. In reality the regulation on Red book was ready in the beginning of 1990, however, it is strange why it was not discussed and approved. It is necessary to force the signing and official approval of this document.
2. In Uzbekistan till to now the question with captive breeding of wild animals is not solved. Only state structures have the rights to do this. However, we know now many examples when private persons have the interest to support such initiatives and absence

of regulations do not allow to develop the useful matters which could support to protect and restore the species in captive breeding conditions (“ex-situ”).

B.B. Abdunazarov presented the report on theme: “CITES and conservation of Snow Leopard”. He told about CITES activity in Uzbekistan and detailed described the procedures of export and import of the representatives of wild fauna, in particular Snow Leopard, included in the different appendixes of CITES.

Questions:

1. Does CITES regulate the change of animals among zoos? - Answer. Yes. All threatened species which breed in captivity are regulated by procedures of CITES. The animals, presented the second generation bred in the captivity, can serve as the objects of trade.
2. Which agencies received the brochures – guide on CITES procedures in Uzbekistan published recently with support of ABBA-CEELI office in Uzbekistan? – Answer: This guide was distributed among workers of custom services, zoos and zoo-center, among authorities which occupy by breeding, trade and control on the export of animals.

N.A. Kasymova presented the paper “CMS and conservation of Snow Leopard”. She told about Convention, its activity and that on the last meeting of Parties of CMS, held in September 2002 in Bonn (Germany), Uzbekistan encouraged initiative on joint efforts of the countries of range on the conservation of Snow Leopard.

E.A. Bykova presented report on collecting and analysis of information on Snow Leopard and its prey species, establishment and conducting of database. There was discussed the method of questionnaire data use and presented the samples of database with information about snow leopard records in Uzbekistan. She underlined the necessity of integration of local (national) databases into SLIMS.

Questions:

1. What is reliability of collected data? – Answer: Information, in spite of some its subjectivism, was gathered mostly among competent persons such as workers of nature reserves, hunters and herders, among people who in their permanent life can meet this predator in the wildlife.
2. Do the records of Snow Leopard on Turkestan range are trustworthy in reality? – Yes. Primary the information about finds of snow leopard there received from hunters. During summer expedition of this year this fact was conformed by gathered questionnaire data, received from the workers of Zaamin nature reserve, local hunters, workers of forestry. Besides that, there are known trustworthy cases of illegal hunt on snow leopard in this region.

B. Aromov presented the report about territorial protection of Snow Leopard in Hissar nature reserve. He told about work which conducted by workers of Hissar reserve on Snow Leopard and other species of wild animal protection.

Questions:

1. What is the staff of scientific department in nature reserve and how is it recruited (completed)? – At present in the staff of scientific department of nature reserve there are 7 persons: 4 scientific workers and 3 laboratory assistants. ! theme – scientific worker on study of birds of prey is not recruited by unit.
2. Are the cases of poaching known on the territory of nature reserve? – Answer: At past (5 years ago) the poaching was rather usual, at present such facts are absent, because it is forbidden to use the fire guns in boundary (frontier) regions to civil society. Besides that, most part of weapon (unregistered guns) was taken from local people. Also on the decreasing of poaching influent the moving of inhabitants of the mountain regions to the plain agricultural areas. At past these inhabitants specialized on the hunting on ibexes and wild boars.

3. How the connecting (joining) of the territories of Kyzylsu and Miraki reserves into united Hissar reserve influent on the protection regime? At past these two reserves were divided territorially, how this problem is solving now? – Answer: During uniting of two reserves into one new large the new territory between these two parts was added to the new reserve, however, it is not enough, because the hollow from the side of Chapukh village is still exists. The inhabitants of this village two years ago were moved to the plain area, therefore at present the favorable situation appeared for the pronouncing of proposal to join this territory to reserve area.
4. What are relations of staff of Hissar nature reserve with frontier military troops? – Answer: On one hand, the soldiers of frontier military troops help to protect the territory, because they controlling all boundary zone, including the area of reserve, and visits there of local people . On other hand, several years ago during military maneuvers conducted on the area of reserve there was high level of disturbance for wild animals and there were known the single cases of poaching on large mammals. However, after discussion with leadership of frontier military troops the poaching was not observed more. At present the cases of wild animals hunting by soldiers of frontier military troops are unknown.

D.A. Azimov said that the meeting is going very vivid, all speakers presented very interesting, irrefragable reviews on themes. He thanked all speakers and asked for to begin the discussion of Strategy.

E. Kreuzberg-Mukhina, A. Esipov presented the draft of Strategy on the Conservation of Snow Leopard in Uzbekistan.

After presentation of Strategy and coffee-break all participants became to discuss the strategy.

**O.V. Mitropolsky. – proposed to make the suggestion on the establishment of buffer zone in Hissar nature reserve.**

B. Aromov. – encouraged this proposal and suggest to join to the reserve area the new territories in upper parts of Sangardak river (from Surkhandarya region) and parts adjacent to Chapukh village.

O.V. Mitropolsky. Proposed the creation of Pskem nature reserve as a part of transboundary protected area among Kazakhstan, Kyrgyzstan and Uzbekistan. In general, the establishment of transboundary protected areas will promote not only conservation of wildlife and its objects, but also the cooperation among the countries of the region and strengthening of peace process in the region.

D.A. Azimov. Seconded the proposed suggestions, and also the idea on the establishment of protected area on Chatkal range in Namangan region of Uzbekistan. This suggestion can be considered as a step to the creation of transboundary territory where Chatkal reserve of Uzbekistan and Besharal reserve of Kyrgyzstan will be also included. Organization and initiation of intergovernmental agreement on the establishment of transboundary protected areas.

G.F. Goncharov: Performed with criticism of suggestion on the joining of territory of all basin of Shavasay river to Chatkal reserve, he proposed to make suggestion on the joining of upper parts of this river as more reasonable practically and valuable for protection of wildlife.

**E.A. Chernogaev. Uphold the suggestion about establishment and development of territories with limiting regime of use (hunting-game manages, etc.).**

**O.V. Mitropolsky. Underlined the necessity of establishment of hunting-game manages, which could give some financial profit for local communities.**

D.A. Azimov. Proposed to use the knowledge of world experience on the reinforcement of interest of local populations in the conservation of biodiversity objects.

A. Kobzev. Proposed to prepare and base the legislative base for interactions of environmental authorities, custom services and frontier military authorities.

A.A. Grigoryants: Said that the first step to the establishment of regional agreement should be the study and comparison of legislations in different countries on this questions.

O.V. Mitropolsky. Asked for to change the “Fight with poaching” on “limiting of illegal hunting”.

A. Kobzev. Proposed to include the point about improvement of material and technic base of nature reserves.

O.V. Mitropolsky. Proposed to make the compensation to herders on the physical damage from Snow Leopard. Also he expressed idea about material support to inhabitants of local communities living closely to snow leopard habitats for the activity on conservation of animals.

A. Kobzev: It is necessary to encourage the sustainable development of regions, including the development of ecological tourism.

D.A. Asimov. Proposed to use more widely mass media, and first of all, television, which influent on the awareness of local communities.

E.A. Kreuzberg-Mukhina Expressed the gratitude to all participants for the fruitful discussion on the Round Table, for the proposed suggestions and comments to the draft of Snow Leopard Conservation Strategy in Uzbekistan. Also she noted that all participants of the meeting endow the input into elaboration of Strategy in Uzbekistan and will be mentioned in the final text of Strategy.

#### **Resolution of the meeting:**

Participants of the Round Table on the discussion of Snow Leopard Conservation Strategy in Uzbekistan resolved:

- Approve the proposed draft of Snow Leopard Conservation Strategy in Uzbekistan;
- Charge with revision and entering of suggestions proposed during discussion on the Round Table into text of Strategy to the organizing committee of the meeting;
- Deliver the text of draft of Strategy to participants interested in the development of Strategy for edition and insertion of new comments and proposals, namely – State Committee of the Nature (Protection of Uzbekistan Republic (juridical department, state biological control department), GEF Transboundary Project on the Conservation of Biodiversity in Western Tien-Shan, Academy of Science (Institute of Zoology), Ministry of Agriculture and Water Management (department of protected areas and hunting manages);
- Finished text of the Strategy to pass for consideration and approval in the State Committee of Nature Protection;
- English version of the Strategy will be passed for reviewing to Executor Director of ISLT Dr. Thomas McCarthy, and to Chair of Cat Specialists Group Dr. Urs Breitenmoser;
- Final version of this document to replace on sites of Snow Leopard Network of ISLT and on site of Moscow office of IUCN (Russian version);
- Find out the opportunities for publishing of Strategy into three languages (Uzbek, Russian and English) in Uzbekistan Republic with support of local authorities, international organizations and representatives working in republic.

#### List of Participants

Workshop on the discussion of Snow Leopard Conservation Strategy in Uzbekistan

|   |              |  |   |
|---|--------------|--|---|
| 1 | T.S. Tillaev | State Committee for Nature Protection (SCNP) | + |
| 2 | N. Kasymova  | SCNP   | + |

|                      |                      |  |   |
|----------------------|----------------------|--|---|
| 3                    | I. Bekmirzaeva       | SCNP   | + |
| 4                    | E.A. Chernogaev      | State Biocontrol SCNP  | + |
| 5                    | G.F. Goncharov       | State Biocontrol SCNP  | + |
| 6                    | A.A. Grigoryants     | State Biocontrol SCNP  | + |
| 7                    | E.S. An              | Protected Areas Department Ministry of Agriculture and Water Resources (MAW) | + |
| 8                    | A.Sh. Khabibullaev   | GEF-WB Western Tien-Shan Project   | + |
| 9                    | O.V. Mitropolsky     | GEF-WB Western Tien-Shan Project   | + |
| 10                   | R.D. Kashkarov       | GEF-WB Western Tien-Shan Project   | + |
| 11                   | M. Mitropolsky       | Tashkent University  | + |
| 12                   | G.P. Tretyakov       | GEF-WB Western Tien-Shan Project   | + |
| 13                   | A.I. Ismailov        | GEF-WB Western Tien-Shan Project   | + |
| 14                   | V. Ten               | GEF-WB Western Tien-Shan Project   | + |
| 15                   | S. Nikulina          | UNDP Biodiversity Project  | + |
| 16                   | Yu. S. Lynov         | Chatkal Nature Reserve   | + |
| 17                   | E. Sarymsakov        | Ugam-Chatkal National Park   | + |
| 18                   | B. Aromov            | Hissar nature reserve  | + |
| 19                   | D.A. Azimov          | Institute of Zoology   | + |
| 20                   | E.Sh. Shernazarov    | Institute of Zoology   | + |
| 21                   | B.B. Abdunazarov     | Institute of Zoology, CITES  | + |
| 22                   | Yu. O. Mitropolskaya | Institute of Zoology of AS   | + |
| 23                   | N. A. Mitropolskaya  | Institute of Zoology of AS   | + |
| 24                   | A.Yu. Zuev           | Ecological Forum of Uzbekistan   | + |
| 25                   | A. Kobzev            | “Khaet” NGO  | + |
| 26                   | S. Sanginov          | “Logos” NGO  | + |
| 27                   | D. Zainutdinova      | «Armon” Eco-Laws   | + |
| 28                   | U. Umarchodjaeva     | Journalist   | + |
| 29                   | R. Ibragimov         | Press-center of SCNP   | + |
| Organizing Committee |                      |  |   |
| 30                   | E. Kreuzberg-Mukhina | UZS, Institute of Zoology  |   |
| 31                   | E. Bykova            | UZS, Institute of Zoology  |   |
| 32                   | A. Esipov            | UZS, Institute of Zoology  |   |
| 33                   | E. Vashetko          | UZS, Institute of Zoology  |   |



Ўзбекистонда илвирс сақлаш учун СТРАТЕГИЯСИ

СТРАТЕГИЯ сохранения снежного барса в Узбекистане

STRATEGY for conservation of the Snow Leopard in  
Uzbekistan

Ўзбекистон зоологлар жамияти

Подготовлено рабочей группой Узбекского Зоологического Общества в сотрудничестве с  
Госкомитетом по Охране Природы РУз

Prepared by Working Group of Uzbek Zoological Society in collaboration with State Committee  
of Nature Protection

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Strategy of Snow Leopard Conservation in Uzbekistan was discussed and approved within the round table with participation of representatives of the State Committee of Nature Protection of the Uzbekistan Republic, Ministry of Agriculture and Water Management of Uzbekistan

Republic, Uzbekistan Zoological Society and Institute of Zoology of Academy of Science of Uzbekistan Republic, National University, Chatkal biosphere and Hissar nature reserves, Ugam-Chatkal national park, GEF project on the biodiversity conservation of Western Tien-Shan, UNDP project on the conservation of biodiversity in Uzbekistan, environmental NGO-s, local focal points of international conventions CITES and CMS and mass media.

Working group on the elaboration of strategy includes: Elena Kreuzberg-Mukhina, Elena Bukova, Alexander Esipov, Bakhtior Aromov, Emilia Vashetko.

Scientific editors of text Prof. D.A. Azimov, E.A. Chernogaev

In the discussion of strategy there were participated O.V. Mitropolsky, B.B. Abdunazarov, T.S. Tillaev, N.A. Kasymova, I. Bekmirsaeva, G.F. Gomcharov, A.A. Grigoriants, E.S. An, R.D. Kashkarov, G.P. Tretyakov, E. Sh. Shernazarov, E. Sarymsakov, A. Kobsev, S. Sanginov.

Reviewers of strategy: Dr. Tomas McCarthy, International Snow Leopard Trust, Dr. Urs Breitenmoser, IUCN Cat Specialists Working Group (English versions), Dr. Eugene Koshkarev, member of SLN Steering Committee (Russian version).

Elaboration of Strategy and preparation of publication were made with support of ISLT – International Snow Leopard Trust.

## INTRODUCTION

Uzbekistan is located in central part of Central Asia and has the boundaries with four other republics of former Soviet Union – Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, and also with Afghanistan on the south. Most part of the territory of republic is occupied by plains, and only on the east and south-east the mountain ridges of Pamir-Alai and Western Tien-Shan are situated. Mountains cover about  $\frac{1}{4}$  part of the area of republic, however, they play the basic role in life support of human population living in the mountains and in the plains. The mountain ecosystems of the region deliver major natural resources, including fresh water, foodstuffs, wood-fiber, timber, fire-wood, biological products. Many species of wild animals: mammals, birds and fish – are traditionally used in domestic economy as objects of hunting and catching. In mountains the hunt on mammals (ibex, wild boar, roe, fox, hare, badger) and on birds (pheasant, mountain chukar, snow cock, partridges, etc) is usual. Last decades the special significance is acquired by trophy hunts, especially with foreign hunters.

As well as in other countries of region, in Uzbekistan as a result increase of nature resources use, agricultural and industrial development, many species of animals became threatened, have reduced their areas of distribution and numbers, and some of them extinct from the area of republic (Turanian Tiger, Cheetah). The large species of mammals and birds having the big practical value as hunting-game craft, and also endemic and locally distributed species occurring within vulnerable intensively developed ecosystems, meet to the greatest threat. It is evident, that without acceptance of special legislative measures on conservation of some species of wild animals and their habitats, there will be permanent direct threat to their survival. It is necessary to mark, that the legislative base in the area of nature conservation is improved in republic step-by-step, as well as the international cooperation is increasing, awareness and concern of social communities in ecological questions is growing. From year to year the network of non-governmental environmental organizations gets stronger and actively cooperates with state nature protection agencies in questions of wildlife conservation and forming of ecological thinking at wide communities.

By signing of Convention on Conservation of Biological Diversity (CBD) (1995) Uzbekistan declared the responsibility for conservation of national biological resources in the face of international community. As further actions in this direction there was the joining of Uzbekistan to other biological conventions such as CITES (Convention on international trade by endangered species of wild fauna and flora) and CMS or Bonn Convention (Convention on conservation of migratory species), in 1997 and 1998 accordingly. Besides, Uzbekistan participates in the preparation of new international agreements on the conservation of threatened species, to number which one is referred also snow leopard.

Among the basic documents, deciding the policy of the state in the area of wildlife conservation, it is necessary to mark the National Strategy and Action Plan on the conservation of biological diversity in Uzbekistan. The text of this document was approved by Chairman of Cabinet of Ministers of Uzbekistan Republic I.A. Karymov on April 1, 1998 (Resolution No 139). The publication of the Red book of rare and threatened animals of Uzbekistan (2003) was by next step of actions towards conservation of biological diversity. It represents the state document, which can be used as the base for legislative protection of biological resources.

Biological diversity of republic is protected within protected area system of Uzbekistan presented by 9 strict nature reserves, 2 national parks, 9 special sanctuaries and 1 Ecological Center established for the restoration of threatened wild mammals in semi-captive conditions.

The mountain ecosystems have a huge ecological value and ensure regulation of many natural processes occurring in the country and in the region. In particular, the landscape zoning of mountain areas ensures the greater level of biological diversity, than on plain. In many respects due to mountain areas Central Asia is one of world centers of the abundance of biological variety. Species diversity of flora and fauna in mountain regions and their abundance are in direct dependence on a state of ecosystems. The declining of ecosystems has led to the reducing of biodiversity. The number of threatened plant and animal species is growing in the mountains, and Snow Leopard belongs to such species. In mountains the processes of degradation such as deforestation and erosion, waste pollution of the environment and cutting of pastures connected with human development of these territories accrue. Therefore large animals, such as snow leopard and its main prey species experience the growing anthropogenic pressure.

Snow Leopard occupies the special place among the representatives of unique fauna of high mountains. By the experts-biologists, it is frequently is esteemed as a key indicator of the Asian high-mountain ecosystems status, as far as it occupies the upper position in the row of nourishment, require the vast areas for the life, move on the significant distances and save well-being only in virgin pristine habitats. There, where Snow Leopard occurs in a significant numbers, natural environment can be evaluated as most safe and productive. Rocky landscapes with their thin soil overlying strata make high-mountainous ecosystems by most fragile among other landscapes of the Earth. At the same time, here at a line of watersheds the aqueous groundwater arteries, feeding by water the lower lands and foothills with dense human populations, spring from the mountains (SLIMS, 2001).

Snow Leopard (*Uncia uncia* Shreber, 1775) is the species included in IUCN Red List with the status Endangered (EN) or being in threatened state. Snow Leopard is included also in many Red Books of the countries of its range. In the new version of the Red book of Uzbekistan (2003) Snow Leopard was assessed according to new IUCN Criteria, version 3.1. (2001) as Critically Endangered (CR) (species with declining numbers and narrow range close to extinct). Major factors of number declining of this cat in the world is the wide development of mountain areas by human communities and connected with this process poaching, resulting from high demand on a skin, parts of the body and derivates used in Chinese medicine; deterioration of food base and degradation of mountain habitats. Snow Leopard is also included in to an Application 1 of CITES (Convention of International Trade in Endangered Species of Wild fauna and Flora) and Appendix 1 of CMS (Convention on Conservation of Migratory Species of Wild Animals). In Uzbekistan the edge of the species range is presented by boundary parts of two independent, irrelevant among themselves groups – Tien-Shan and Pamir-Alai. Both populations occupy the bounded enough territories, which are developed in the result of extensive economic activity (Western Tien-Shan) and are under control of frontier (boundary) armies creating the new destabilizing factor.

World range of Snow Leopard encompasses Mongolian and Gobi Altai, Hangai, Tibet, Himalaya, Hindukush, Pamir, Tien-Shan, Djungar Alatau, Tarbagatai, Saur, Southern Altai. These mountain areas include pieces of territories of 13 states: China, India, Pakistan, Nepal, Afghanistan, Mongolia, Bhutan, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Burma (Fig. 1). Under pressure of negative anthropogenic factors Snow Leopard has vanished in many parts of its primal range to the present time. The area of world range of the species was reduced from 3 million sq. km up to 1.8 million and became fragmented on separate regions. In Central Asian region Snow Leopard extinct in mountains of Karatau range (Southern Kazakhstan) and western extremity of Zeravshan range (Uzbekistan). Its number was sharply reduced in Western Tien-Shan and in southwest of Pamir-Alai mountains.

Uzbekistan part of the range represents extreme western boundary of the Snow Leopard area of occurrence, and the state of its core Tien-Shan and Pamir populations depends also on a status of boundary parts. The satisfactory status of the species on the peripheral parts of the range can be considered as indicator of well-being of population as a whole (in general). At the same time, peripheral nature of Snow Leopard distribution in Uzbekistan, as well as influence of some negative factors cause a high degree of species vulnerability and dictate necessity of urgent measures on its protection. The elaboration of national Strategy of Snow Leopard conservation in Uzbekistan will allow to solve some primary questions of species conservation and attract the attention of environmental community to this key mountain species protection. To the present the sufficient experience on creation and realization of Conservation Strategies for threatened species is accumulated. So, in 1996 the experts of the IUCN/SSC Cat Specialist Working Group elaborated the Status Survey and Conservation Action Plan for wild cats of the world (K. Nowell, P. Jackson, Wild Cats, 1996). The International Snow Leopard Trust (ISLT) together with experts from the range countries and international environmental organizations (IUCN, WWF, secretariats of CITES, CMS) elaborated the International Strategy of Snow Leopard Conservation (2003). Since the middle of 1990 some national strategies oriented on conservation of large cats are prepared: Strategy for conservation of Amur Tiger in Russia (1996), Strategy for conservation of the Far-east Leopard (1999), Snow Leopard management Plan of Mongolia (2000), Strategic Plan for the conservation of Snow Leopard in Pakistan (2001), Strategy for Conservation of the Snow Leopard in the Russian Federation (2002), Strategy for conservation of the Snow Leopard in Nepal (2003). Tasks of national strategies and action plans is the clarification of problems of species survival in modern conditions and development of main principles (philosophy) for the decision of questions of species conservation, constructing of information network for gathering and sharing data on the status of populations of threatened species, important for species survival, and creation of base for the permanent cooperation among all interested stakeholders.

The elaboration of present document was conducted in close cooperation with state and public organizations working in the field of biodiversity conservation, at opened consulting process with the expert-zoologists studying the vertebrate animals in mountain areas of Uzbekistan.

The present document of the draft of Strategy is the version proposed for discussion within the framework of a Round Table held in Tashkent on December 10, 2003.

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## 1. BIOLOGY AND CURRENT STATUS OF SNOW LEOPARD

### 1.1. Taxonomy, field characteristics and mode of life

#### Taxonomic status

Snow Leopard or Irbis – *Uncia uncia* (Schreber, 1778) – is the large predator living in high mountains of Central Asia. It belongs to family of Cats – *Felidae* and it is the along representative of a genera *Uncia* Gray, 1854 or snow leopards, which on a series of morphological attributes occupies an interim position between the large cats of a genera *Panthera* Oken, 1816 and small cats of a genera *Felis* Linnaeus, 1758.

#### Biological features

Snow Leopard is comparable on the size and appearance with leopard. On a series of craniologic and ethologic attributes it has looking alike by the small cats. Length of a body compounds 112-125 cm, tail – 92-105 cm, height in withers is 60 cm, in sacrum – is 50 cm, mass of the body compounds from 33-40 kg at females, till 45-50 kg at males. Fur is very light, almost white with smoked tint. On the basic background are sparse of a large ring-shaped and close set small stains of black color. It is possible to esteem lengthy fur with dense undercoat, fluffy lengthy tail, wide pads with short fingers and powerful pectoral muscles as adaptive attributes for life in severe climatic conditions of high mountains. The geographic variability of irbis is expressed very gentle, that is instituted by relative homogeneity of conditions of habitats (life) within all species range.

#### Mode of life

Snow Leopard usually is a single animal on the mode of life. Sometimes there are groupings composed from 2-6, or more often 2-3 individuals. As a rule, all animals belong to one family. Irbis arranges the shelter in a cave or crevasse among a heap of rocks with good masking conditions. It is active predominantly in twilight time of day, and in the day time it is disguised in caves and crevasses of rocks. Quite often it makes durable transferring during a day. The move is carried out predominantly lengthways of “routing lines” of a relief – along river valleys, ripples of watersheds, foots of rocks. The tracks are divided on “hunting”, oriented along mountain ranges and playing the basic role in looking ups of prey species, and “transit”, passing through apron plains, glaciers and moraines. Here animals, as a rule, do not hunt, it is a zone of transferring, serving for links of the separated groups and settling of Snow Leopard. The boundaries of an individual part of habitats of irbis can encompass territory within the scope of one river basin with fragmental capture of adjoining apron plains (Koshkarev 1989).

The pairing takes place in the period between the end of January and middle of March. In May – July the female brings from 1 up to 5, and more often 2-3, cubs. Till to the age about one year the cubs do not part with the mother. In the age of 2-3 years young females already can start breeding, the mails achieve pubescence by 4 years. The maximal life expectancy (life time) in a nature compounds 12-13 years, in captivity it reaches 21 years (Blomqvist and Sten 1982, Wharton and Freeman 1988), though the case is known, when one female has lived 28 years (“Strategy for Conservation of the Snow Leopard in the Russian Federation” 2002).

### 1.2. Typical habitats

Snow Leopard is the inhabitant of high mountains of Central Asia. Usually it occupies the upper chords of mountains in altitude limits from 3000 up to 4500 m, preferring areas with the strongly intercepted relief – rocky gorges, heaps of stones and exists of rocks alternating to small plateau and apron plains with alpine vegetation, where the ibexes and mountain sheep – argali (basic prey) inhabit, and where there are lot of convenient shelters. In the winter period the irbis makes vertical wandering, following to wild ungulates to the lower belts of the mountains. In

Uzbekistan Snow Leopard usually is not come down below than zone of juniper forests – 2500-2800 m, but in apart multisnow winters it can be found in lower chords of mountains, than usually. *The conservation of vulnerable high-mountainous ecosystems is a base for the species survival.*

### ***1.3. Current status of the Snow Leopard in Uzbekistan***

#### **Distribution**

In Uzbekistan the irbis occurs on Ugam, Pskem and Chatkal ranges of the Western Tien-Shan, and on Turkestan, Zeravshan and Hissar ranges of Pamir-Alai system. The area of occurrence of Snow Leopard in Uzbekistan is about 10 thousand km<sup>2</sup>, that compounds *no more than 0.5 % from the area of world range (Fig.1).*

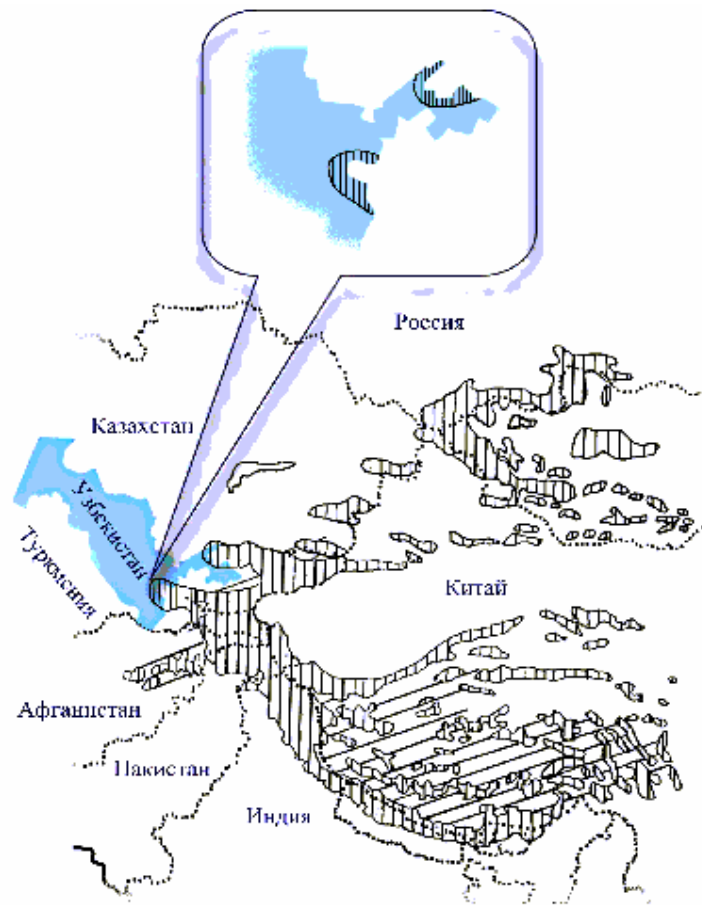


Figure 1. World range of Snow Leopard – interpretation of picture with accent on Uzbekistan on Distribution of the snow leopard (*U. uncia*) (K.Nowell, P.Jackson, Wild Cats, 1996)



## Number

The total number of a global population of Snow Leopard is assessed in 4510 – 7350 individuals (K. Nowell, P. Jackson in Wild Cats, 1996). Its density is on the average valued from 0.8 individuals on 100 km<sup>2</sup> (Koshkarev 1989; Annenkov 1990 in Wild Cats 1996) up to 10 individuals on 100 km<sup>2</sup> (Jackson and Ahlborn 1989 in Wild cat 1996). The data on density of Uzbekistan part of population is absent. In next Kazakhstan the density of irbis was defined in 0.8 – 4.7 individuals on 100 km<sup>2</sup> (Koshkarev 1989 in Wild Cats 1996). In Uzbekistan the number of irbis by different estimations compounds from 30 up to 50 individuals, i.e. **less than 1 % of a world population**. In Western Tien-Shan by experts estimations it is included 10-15 individuals, in Hissar-Alai – 20-30 individuals of Snow Leopard. The number of this predator varies on seasons, in connection with natural transboundary migrations.

### 1.4. Food

The natural prey of Snow Leopard are mountain ungulates, and less often rodents. **In Uzbekistan the basis of Snow Leopard food is compounded by Siberian Ibex (*Capra sibirica* Pallas, 1776)**. Less often into his diet goes Wild Boar (*Sus scropha* L. 1758), Siberian Roe (*Capreolus pygargus* (Pallas, 1771), in summer time irbis willingly hunts the Mensbier's Marmot (*Marmota menzbieri* (Kaschkarov, 1925) and Red or Long-tailed Marmot (*Marmota caudata* (Geoffroy, 1844), Red Pike (*Ochotona rutila* (Severtzov, 1873) and hare-tolay (*Lepus capensis* L., 1758). Chukar (*Alectoris chukar* (J.E. Gray, 1830) and Himalayan Snow Cock (*Tetraogallus himalayensis* G.R.Gray, 1843) also go into a diet of Snow Leopard.

Irbis, as a rule, attacks from shelter, quietly creeping to prey. After wild ungulates Snow Leopard makes regular vertical roaming – during summer in the subalpine and alpine mountain belts, during winter – in a wood (forest) belt of mountains.

**As drop of number of natural prey, Snow Leopard is forced passes to feeding by domestic livestock** – by sheep, goats, less often by foals and young large horned cattle. In exceptional cases it attacks large cattle: the adult horses, cows, donkeys. The attacks on domestic animals often takes place in winter period. The basic food competitors of Snow Leopard are the wolf and lynx.

### 1.5. Biological peculiarities most significant for species conservation

#### Features of biology and mode of life conducive to Snow Leopard Survival

- *The high mobility* of a species promotes moving and genetic interchanging between individuals from different groups, and it is allows to move to more secure areas of habitats.
- Typical for all cats *secrecy and caution* also promote a survival of irbis.
- *The inaccessibility of habitats*, conditioned by severe climatic conditions and sharply intercepted relief, serves natural security for Snow Leopard.
- *The opportunity of transferring on other objects of prey* makes premises for a species survival.

#### Features of biology and mode of life impedimental to Snow Leopard survival

- *Spatial conservatism*, i.e. constant stay in the same places, augments probability of Snow Leopard capture (catch).
- *The high snow overlying cover to winter*, strongly confines opportunities to movement (travel) of Snow Leopard, that constrain it to come down in the lower mountain belts, where it becomes more often by bag (prey) of hunters.
- Irbis *does not demonstrate the great care* in respect of man. When it meets with people, it does not hurry up and can be easy object of bag.

- Snow Leopard *does not exhibit aggression in relation to man*. The cases of an attack of Irbis on the man practically are not known. Young snow leopards are easily tamed.
- Despite of a rather miscellaneous diet of Snow Leopard, *its number is in close dependence on number of the basic prey – mountain ungulates, especially ibex*.

## 2. LIMITING FACTORS

### 2.1. Factors of direct impact

#### Illegal hunting

***By an expert estimation annually in Uzbekistan is excepted not less than 10 individuals of Snow Leopard.***

- *Illegal hunting for selling of skin and other parts of the body of Snow Leopard*. The skin of snow leopard has demand, both on local, and in the international market. Its cost can compound from 1000 up to 3000 US dollars. The experts mark, that the world market of furs last years was strongly reduced because of accepted measures for the regulation by trade in skins and activating of movement for the rights of animals. At the same time demand on the parts of the snow leopard body, sustained by the markets of China and countries of Southeast Asia remain high. In traditional oriental medicine the parts of the body of large predators are utilized widely as raw materials for preparation of medical products.
- *Capture (catch) for keeping in captivity*. In the Soviet period the greatest number of snow leopards for the keeping in captivity (for zoos) was taken from territory of Kyrgyzstan and Tajikistan. In Uzbekistan in connection with low number of this animal, its capture for this purpose did not practice. Now, in republic takes place illegal capture of adult irbises and cubs for sale with the purpose of the keeping in private menageries.
- *Traditional hunting on Snow Leopard*. For a long time, in mountain regions the Snow Leopard is bag for the sake of beautiful warm fur, and as the honorable trophy showing the prowess of hunter. In the past the skin of Snow Leopard was prepared as valuable fur-bearing raw. The prohibition for hunting of Snow Leopard and its including in the Red data book of Uzbekistan was essential (indispensable), but insufficient step for complete extermination of cases of a hunt on this predator. At present there are known the cases, when the animal (irbis) was shot (killed) for the sake of sports concern and prestige of the hunter.
- *Killing by local people in revenge for the attacks of domestic livestock*. The belief that Snow Leopard strongly undermines the number of domestic cattle existed for a long time. In reality this belief is considerably exaggerated. Irbis attacks the domestic livestock, more often on medium animals – goats and sheep, sometimes on large animals – horses, cows, donkeys. Majority of these cases, as a rule, are connected with declining of wild ungulates numbers in the result of epidemics, overhunting, etc., that forcing the predator to choose other kinds of prey. Cases of attacks for livestock are more often in winter season, when in the conditions of high snow cover the hunt on mountain ungulates is more difficult. There are known many cases, when defending livestock, the herders had killed the snow leopards by sticks. ***Thus, the main cause of attacks of Snow Leopard on domestic animals is the declining of wild ungulates numbers. Very often such cases finish by killing of predator (snow leopard).***

#### Decreasing of Snow Leopard numbers owing to diseases

This theme is not studied in Uzbekistan. In Mongolia there were described the cases of snow leopard illness by mange (rash) (2003 Snow Leopard Survival Strategy). In Kazakhstan there

was known the case of Snow Leopard disease by rabies (hydrophobia) (Heptner, Naumov, 1972).

## **2.2. Factors of indirect impact**

### **Deterioration of food base**

Perhaps more serious threat for the species survival is the declining of prey species, and first of all, the decreasing of wild ungulates numbers – main source of snow leopard food. The causes of species-prey of Snow Leopard are:

- *Decreasing of numbers of prey species in the result of illegal hunting.* Poaching of mountain ungulates, marmots and other species is one from the causes of Snow Leopard number decline. Administration of limits for the visiting of boundary mountain areas, prohibition to keep and carry of rifled guns by civil citizens make the preconditions for stabilization and increasing of wild ungulates number. However, the continuing sag of life (lowering of the level of life) in the mountain villages leads to the poaching of local inhabitants who hunt the mountain ungulates for skins and meat, and marmots for fur, meat and healing fat.
- *Decreasing of numbers of prey species in the result of overhunting.* There are known some cases, when the main causes of the decline of wild animals populations were overhunting. For example, in the end of 1980 in Western Tien-Shan the trade stoking-up of wild boar led to the decline of reproducing pool (individuals participating in reproduction) and considerable decreasing its number. To the present, the Tien-Shan isolated population of wild boar did not restore until past level.
- *Decreasing of numbers of prey species in the result of diseases.* Periodically the populations of wild ungulates are stressed by transmissible diseases. For example, one of the reasons of sharp decline of Siberian Ibex number, begun in 1970, was an epizootic of mange (rush) or sarcoptoze. Now the epizootic finished.
- *Decreasing of numbers of prey species in the result of competition with domestic livestock for pastures.* Competition with domestic livestock for pastures leads to the decreasing of numbers of wild ungulates, which are natural prey species of Snow Leopard. Consequence of this can be declining in number of Snow Leopard and change of its food from wild animals on domestic livestock. Last fact leads to the conflict between interest of local human populations in the mountains and ibex as wild predator. More often solution in such kind of conflicts is the killing of snow leopard. In Uzbekistan the high-alpine meadows are utilized as seasonal pastures for cattle and livestock. At past till to beginning of 1990) the mountain pastures exploited as local herders, as shepherds from neighboring republics. At present owing to worsened economic situation the number of domestic livestock on pastures decreased. And only inhabitants (citizens) of Uzbekistan can use the pastures with special permits (card for pasture of cattle) which can be received from local forestry. In the card has been shown the name of shepherd, type and number of grazed cattle and number of convoy dogs.

### **2.3. Others**

To other factors are such causes which influent directly on snow leopard, or indirectly through influence on its prey species or habitats.

### **Degradation of habitats**

Snow Leopard inhabits in rather narrow range of high-mountain ecosystems: subalpine and alpine meadows, rocks, snow places and glaciers. The state of ibex populations is connected closely with state of its habitats. Negative changes of the environmental conditions reflect on the survival of this predator and its prey. Worsening of quality and fragmentation of natural habitats

are joint with development of mountain regions and degree of use of the high-mountainous ecosystems. Construction of new and increase of existing mountain villages, paving the ways, electrification, development of mountain slopes by agriculture (fruit trees, walnut, cereals, potatoes, tobaccos, etc.), deforestation lead to a considerable degree to decline and decrease of the areas of natural habitats of wild animals, make the preconditions for the erosion of mountain slopes. Overgrazing of high-mountain meadows under pastures brings down the productivity of meadows substantially.

At present, in the most part of the areas of Snow Leopard occurring this tendency is still existing. However, last years in some places the influence of urbanization is reducing, because the inhabitants of some villages located closely to Snow Leopard habitats in boundary zones were moved to plain areas (closely to Zaamin nature reserve and Hissar nature reserve, in the basin of Tupalang River), and anthropogenic disturbance decreased in these regions.

### **Factors of disturbance**

At past the factors of disturbance were created by high level of visits in high-mountain areas by shepherds, collectors of medical plants, walnuts and fruits, hunters, tourists and pilgrims. At present, the factors of disturbance came down in the result of establishment of frontier regime in the boundary mountain areas and rising in prices of transport expenses (automobiles, helicopters). However, the blasting operations conducted for discovering of minerals create the high level of disturbance for wild animals (for example, the extraction (mining) of bolid's ore in 2 km from Chatkal nature reserve, suspended in 2002). The military maneuvers, periodically conducted in some mountain regions (for instance, in Kashkadarya and Surkhandarya regions mountain areas) present the source of disturbance for wild animals and prevent the movements of wild animals by traditional migratory (roaming) routes.

### **Influence of frontier-military regime on the populations of wild animals**

Establishment of frontier-military regime within Snow Leopard habitats, on one hand, create the favorable conditions for survival of populations of this predator and its preys in the result of control and protection of the mountain areas. Toughening of control for keeping and using of unregistered fire-arms led to sharp decrease of their utilization. On other hand, the permanent presence in the mountain regions of military forces in itself makes the disturbance to wild animals.

### **Human population growth and decline in living standards**

About 10% of the population of Central Asia live in the mountain regions. Growth (natality) of human population in the region as extremely high and exceeds the temps of such growth in Europe in 2-3 times. As a consequence of unfavorable economic situation in many mountain regions and escalating poverty the migration of inhabitants of mountain villages to towns and cities on the plains are observed. The human population of the mountain regions in Republic comes across many problems connected with survival in the period of the economy in transition, for example, such as remoteness, fragility of environmental resources, complicated climate conditions. In the mountain regions the economic activity is limited. The growth of human population leads to the increase of permanent influence on the vulnerable ecosystems of high-mountains. The average family in the typical mountain village consists 6-8 persons. Majority of people has the low subsistence wage (living level). Besides that, in the mountain villages the level of unemployment is much higher than in the plain regions, especially among young people, therefore many villagers survive exploiting the nature resources and wildlife, first of all, collecting fire-wood, different kind of plants (medical, food, decorative – mostly for selling) and bag (hunt and capture) of wild animals.

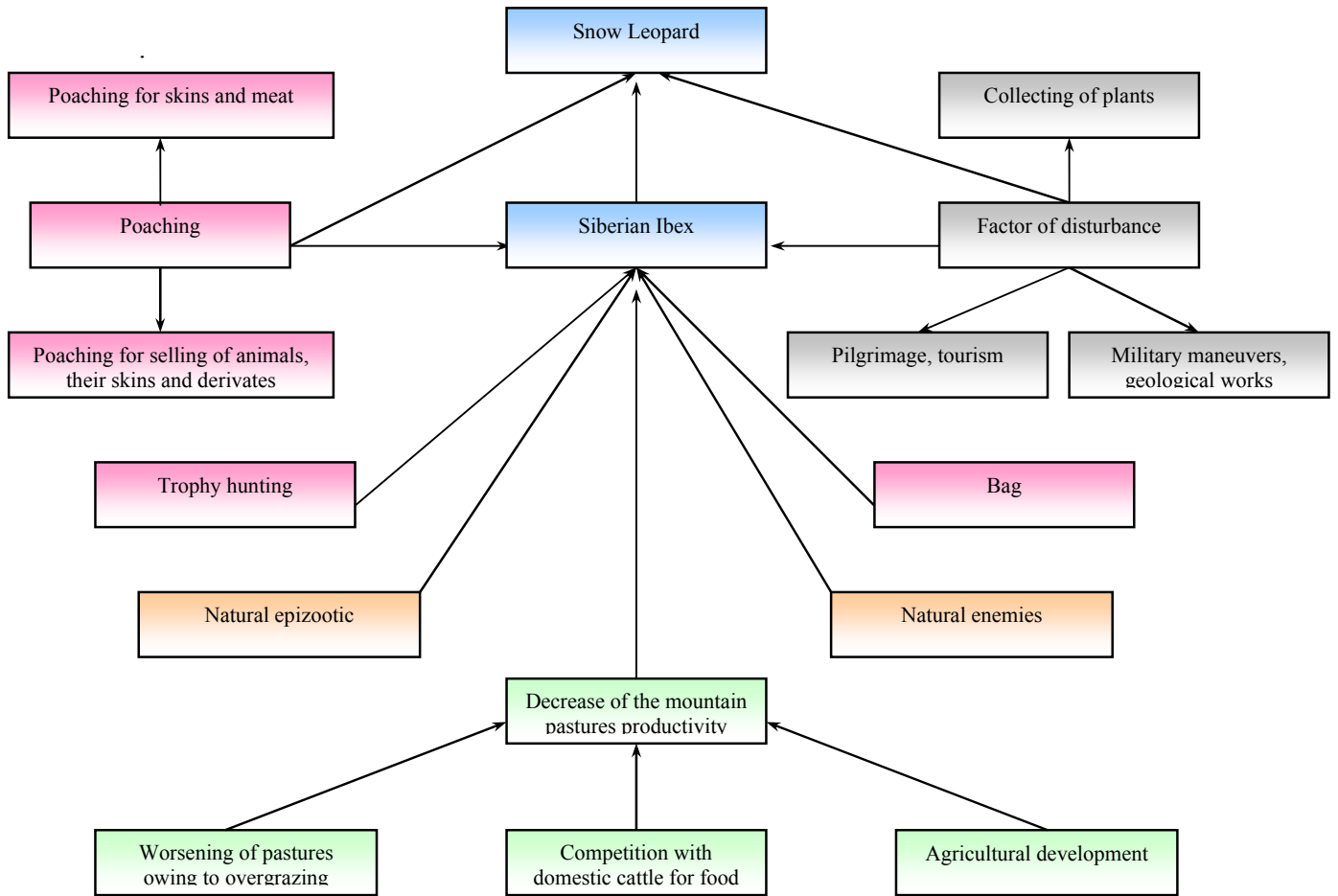


Figure 2. Factors limiting the numbers of Snow Leopard and its main prey – Siberian Ibex in Uzbekistan.

## **Climate change**

The global warming of climate can lead to irreversible changes of the vulnerable mountain ecosystems, including areas of Snow Leopard habitats. In Central Asian region the area of glaciers decreased on 19% during last 30-35 years. Further decreasing of area of glaciers and eternal snows can result to the loss of some parts of Snow Leopard habitats.

### **Development of tourism and recreation activity in the mountains**

Recreation activity in Uzbekistan is mostly concentrated in the mountain regions, where the numerous rest-houses and zones, sanatoria, forest cottages, scout camps and other campings are located. The most part of well-known tourist ways of different categories of complexity is also presented in the mountain regions. Sportive mountaineering and mountain climbing, mountain ski sport and sportive orienteering, delta- and para-planners are presented very widely in Tien-Shan and Pamir-Alai mountains. Water sportive tourism (rafting, canoe-paddling) also is developing mostly in mountain areas of the region. Recreation loading on the mountain regions continues to grow in the result of the human population growth in cities and towns located closely – in the plain regions.

## **3. EXISTING CONSERVATION MEASURES**

### ***3.1. Legislative base for Snow Leopard Conservation***

Including of Snow Leopard in the Red Book of the Republic of Uzbekistan (1983, 2003) promoted the necessary preconditions for the undertaken of special measures for the conservation of this species at the national level. Following environmental laws “About Nature Conservation” (1992), “About Special Protected Areas” (1993), “About Protection and Utilization (Use) of the Animals” (1997) and regulation of the Parliament of the Republic of Uzbekistan “About Reinforcement of the Conservation of Rare and Endangered Species of Plants and Animals and regulating of their Use” (1993) and Cabinet of Ministers “About Measures on Reinforcement of the Conservation of Rare and Endangered Species of Plants and Animals and regulating of their Use” (1993) regulate the relations in the area of threatened species, included in the national Red Book, use. At present, the fine for the hunting (poaching) of Snow Leopard is 50 minimal salaries or 2 years of imprisonment. However, the cases of arrest of the poachers practically are unknown, that is connected with lack of the realization of conservation measures and scanty (insufficient) financing of the rangers staff and wardens of the protected areas. It is necessary to improve not only legislation, but its execution throughout economic and legal mechanisms.

### ***3.2. Protected areas***

In Uzbekistan Snow Leopard is protected on the territories of three strict nature reserves:

Chatkal, Hissar and Zaamin, and two national parks: Ugam-Chatkal and Zaamin. All these

protected areas cover approximately 5.8% from the total area of Snow Leopard occurrence in

Uzbekistan (Hunter and Jackson 1997). However, more probably, just within protected areas

the density of snow leopard settlements is close to optimal and its numbers here are higher

than on adjacent areas.

### **Strict nature reserves**

CHATKAL BIOSPHERE strict nature reserve is located within the western spurs of Chatkal range (Western Tien-Shan mountain system) on the territories of Parkent and Bostanlyk districts of Tashkent region. Its area is 451.6 sq. km. The reserve is consisted by two parts: Bashkyzylsay and Maidantal and located within altitudes from 1200 to 3800 m. Now this reserve administratively is under leadership of Tashkent regional administration body (“khokimiyat”). On the conducted assessment not more than 2-3 individuals of Snow Leopard inhabit on the area of reserve. The base for Snow Leopard feeding in Chatkal reserve is presented by Siberian Ibex and Mensbier’s Marmot. It is necessary to note that Akbulak sanctuary existed at past on the adjacent to Maidantal part of the reserve in the basin of Aknulak River was closed owing to termination of the existence term, this fact worsened the situation with snow leopard protection in the reserve and adjacent territories.

HISSAR STATE nature reserve is located in Kashkadarya region of Uzbekistan within the western slopes of Hissar range on the altitudes from 1750 to 4349 m. The total area of reserve is 814.3 sq. km. From the east and south-east the reserve is boundary on the ridge of Hissar range with Surkhandarya region of Uzbekistan, on the north – with Tajikistan. This is the biggest reserve on the area of Uzbekistan, it was created in 1983 by connecting of two independent mountain reserves – Miraki and Kyzylsu. At present the Hissar reserve is under leadership of State Committee of nature protection of the Republic of Uzbekistan. On the preliminary assessment the number of Snow Leopard in the reserve is 12-19 individuals, however, this number is varied by seasons, because snow leopards moving outside of nature reserve to the adjacent mountain massifs. The main food objects of Snow Leopard here are Siberian Ibex and Long-tailed Marmot.

ZAAMIN STATE nature reserve is located in Djizak region of Uzbekistan on the northern slopes of Turkestan range within altitudes from 1760 to 3500 m. This reserve occupies the area in 268.4 sq. km and belonged to leadership of Main Department of the hunting management, nature reserves and national parks of the Ministry of Agriculture and Water management of the Republic of Uzbekistan. It boundaries on the east with Tajikistan. On the area of nature reserve there were registered 2-3 individuals of Snow Leopard. The main prey of Snow Leopard here is Siberian Ibex.

### **National parks**

National parks are the type of protected areas relatively recently established in republic. The national parks occupy about 30% from all protected areas. First national park of Uzbekistan – Zaamin, located on the northern slopes of Turkestan range, was established in 1976. Its area is 241.1 sq. km. Snow Leopard is registered on the territory of park time to time – single individuals.

Ugam-Chatkal national park was established in 1990. It is located on Ugam, Pskem and Chatkal ranges. Its territory is 5745.9 sq. km. Chatkal strict nature reserve is included in the area of

Ugam-Chatkal national park. On the expert assessment, the number of Snow Leopard in the park is evaluated in 10-15 individuals.

Unfortunately, the protected areas can secure the survival only for small part of the Snow Leopard population, because they are not large on the territories and spatially isolated each other. Therefore it is necessary to improve and to enlarge the mountain protected areas in the places of Snow Leopard occurring.

### ***3.3. Transboundary cooperation***

The states of Central Asia created the special potentiality on the consolidation of cooperation in the area of biological diversity conservation. On the level of the leaders of these states there were taken some important decisions, created the regional organizations (including Regional Ecological Center), began join programs and projects. The countries of the region actively develop the collaboration with regional and international programs, being members of many international and regional organizations, parties of the main international ecological agreements on biodiversity, climate, desertification and others. All these conditions establish the opportunities for the wide development of regional cooperation in the area of conservation of the vulnerable biodiversity of mountain systems.

The areas of Snow Leopard distribution in Uzbekistan are located in the boundary regions with other countries. The species changes its location during a year more than once, moving on the big distances on watershed lines which often serve as the state boundaries. Therefore as applied to this species it is more important to develop the transboundary cooperation and coordination of actions between neighboring states in the mountain regions.

First steps in the development of regional collaboration in the area of biodiversity conservation were undertaken during implementation of GEF project on conservation of biodiversity in Western Tien-Shan which was begun in 1998. The Snow Leopard was chosen as one of key species for the analysis of successfulness of realized actions in the project and attracting of wide attention to the problems of fauna protection in this vast region. Besides that, in the end of 1990 the working group on the conservation of Snow Leopard, called "Asia-Irbis", was established and began to work in Central Asia. The activity of this group was supported by International organizations - Sacred Earth Network (SEN) and International Snow Leopard Trust (ISLT). The working group organized two regional workshops: first of them was held in Aksu-Djabagly nature reserve (Kazakhstan) in 1999, the second one was held in the Ala-Archa National Park (Kyrgyzstan) in 2001. Both meetings united as well as the representatives of non-governmental and state organizations, as field researchers and rangers, involved in the practical study and conservation of Snow Leopard. By spring 2002, in Seattle (USA) the International Snow Leopard Summit was held where questions of the Snow Leopard Conservation Strategy in the countries of the range were discussed. During a Summit there was taken the decision about establishment and development of Snow Leopard Network (SLN). At present this network interact successfully, attracting the attention to the problems of Snow Leopard conservation at different levels – international, sub-global, regional, national and local. Every year in the countries of the ranges the projects on themes, connected with study and protection of Snow Leopard, have realized with support of ISLT. So, it is possible to hope that such activity will promote the necessary attention to this species at all levels and will serve as presupposition for species survival in future.

Besides, since the middle of 1990<sup>th</sup>, in the countries of the region the international cooperation in the investigation of problems of mountain regions development becomes stronger. In the result of several international conferences ("High-mountain investigations: changes and perspectives in XXI century", Bishkek, Kyrgyzstan, 1996; "Mountains of Central Asia", Bishkek, Kyrgyzstan,



2000) there was created Central Asian Mountain Informational Network. For the establishment of intersectoral cooperation and forming of strategic vision of united actions in 2000-2001 there was realized project “The Regional cooperation on the sustainable development of mountain territories in Central Asia” with support of Asian Bank of Development and government of Switzerland. The project of “Regional Strategy of the sustainable development of mountain regions” was elaborated with technical and financial support of the Regional Ecological Center in 2002. One from the main goals of the International Year of Mountains and Global Mountain Summit (Bishkek, Kyrgyzstan, 2002) was drawing-up the united approach for the solution of the problems of mountain regions development in the different countries on multisectoral and multilateral base.

### ***3.4. Red Book***

Including of Snow Leopard in the Red Book of Uzbekistan (1983, 2003) and IUCN Red List (2000, 2002) build up the necessary preconditions for the development of conservation strategy and action plan for the protection of this species. In book “Wild Cats” (1996), there were determined the priority projects concerned the measures on life-saving of Snow Leopard in wildlife. In particular, the project number 73 was designated as the assessment of current status of Snow Leopard in Russia and republics of Central Asia. To the present, the primary assessments of the population status in the region were conducted. Their results have shown the necessity of urgent measures for protection of Snow Leopard in the countries of the region. In Uzbekistan where both groups of Snow Leopard, Tien-Shan and Hissr-Alai, are located on the edge of the range, and species itself is close to extinction without undertaken of special conservation measures. Therefore all received data of expertise require the elaboration and reinforcement of the actions on the species protection.

### ***3.5. International Conventions***

Uzbekistan Republic joint to Convention on Conservation of Biological Diversity (CBD) in 1995. Ratification of this Convention stimulated the elaboration and approval of the National Strategy and Action Plan of the Conservation of Biological Diversity (1998). Snow Leopard is included in Appendix 1 of CITES (Convention on International Trade by Endangered Species of Wild Fauna and Flora) since 1975, that means the prohibition on the international trade of this species, the parts of its body, derivates and their productions. Uzbekistan is the first country of the region signed this Convention (CITES) in 1997. So, all questions connected with import and export of Snow Leopard in Republic are regulated by responsible CITES Authority. Since 1985 the Snow Leopard is included in Appendix 1 of CMS or Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals). Uzbekistan joint to this convention in 1998. On the Meeting of Parties (September 2002) the representatives of Uzbekistan encouraged the initiative proposed by this Convention on the decision of Snow Leopard as the species required the united coordinated actions of the countries of the range for its conservation.

### ***3.6. Conducting of scientific investigations: monitoring***

Snow Leopard in view of its biological peculiarities such as secretiveness and caution, and also in the result of remoteness and difficulty of access of its habitats, is belonged to the number of less studied species. Insufficient knowledge of the species biology in Uzbekistan makes difficulties in conducting of special measures on its protection. At present in Uzbekistan there is no any special programs aimed to study of Snow Leopard biology and ecology. At past, Snow Leopard was studied on the territories of strict nature reserves also mostly incidentally, during conducting of fauna inventory. In 1980-1990 the special researches on the study of biology, number and distribution of Snow Leopard were conducted in Hissar reserve. In Chatkal reserve during last 40 years, the regular seasonal (spring-autumn) accounts of fauna are conducted by staff of reserve. During such surveys all large mammals and their tracks are registered on 16 constant routes, the data on Brown Bear, Ibex, Wild Boar, Roe, Snow Leopard and others are

accumulated in the special nature chronicles. In other mountain reserves the annual accounts of wild animals are conducted since 1982.

At present the following projects related to mountain areas and conservation of their biological diversity are conducted: “Correlation of extinction risk for Central Asian biodiversity” (INTAS, 1999-2003), ISLT projects (1999, 2002, 2003), SEN (2000, 2001), GEF-Western Tien-Shan (1998-2003) and some others.

### ***3.7. Propagation***

Partially, the propagation of ideas of Snow Leopard, its prey and habitats conservation is provided within mentioned above international projects. The scientific workers of nature reserves, and scientists from Uzbekistan National Academy are involved in this process. The propagation covers the broad masses of the human population in mountain regions either through mass media (radio, newspapers), either directly through the work with local communities, students and school children. The special value has the public awareness among inhabitants of mountain villages located closely to Snow Leopard habitats. However, all these actions are realized in insufficient scale. In the staff of special protected areas there was not envisaged the administrative unit, responsible for the work with local communities. Only in one Chatkal biosphere strict nature reserve there is the special department for the work with local communities.

## **4. NECESSARY CONSERVATION MEASURES**

### ***4.1. Reinforcement of environmental legislation***

In spite of fact, that laws, regulated protection of threatened species, including of Snow Leopard, were taken in the Republic of Uzbekistan, their realization meets with some difficulties. First of all, it is necessary to strengthen the control on the execution of existing environmental legislation, including the improvement of economic stimulating of workers of environmental services and wildlife protection inspections. Also it is desirable to make the existing environmental legislation in accordance with requires of international conventions (CITES, CMS). Taking into account, that distribution of Snow Leopard in Uzbekistan is belonged to mountain boundary (frontier) regions, it is necessary to create the legislative mechanism of interactions between environmental inspections and military-frontier services.

### ***4.2. Development of Protected Areas network***

At present the total territory of special protected areas in Uzbekistan is insufficient for the conservation of such large species as Snow Leopard. As a rule, the protected areas cover the parts of the habitats for separate individuals or families of Snow Leopard, but not protect the local groups as a whole. Despite the fact, that Ugam-Chatkal national park territorially covers the significant areas, the weak conservation regime of this authority does not secure the necessary defense for Snow Leopard. In National Strategy of Biodiversity Conservation of Uzbekistan (1998) one from the first and main standing is defined as improvement of protected areas network and its increase till to 10% from the area of Republic. Now in the framework of some projects the schemes for the development of protected areas network are elaborated. In Uzbekistan the degree of Snow Leopard habitats cover by protected areas is evidently insufficient and presents only 5.8% from the areas of this species occurrence. Therefore, for the improvement of territorial protection of local groups of Snow Leopard, it is necessary to recommend following:

- *Reinforcement of the conservation function in existing reserves, especially in frontier boundary regions.*
- *Optimization of relations between administrations of strict nature reserves and other adjacent them land tenures.*
  - Establishment of buffer zones in Hissar and Zaamin strict nature reserves.

- Revision of the existing buffer zone of Chatkal biosphere strict nature reserve, e.g. creation of buffer zone around all territory of this reserve.
- *Enlargement of existing protected areas:*
  - Widening of Hissar strict nature reserve by joining of adjacent territories in the upper parts of Tupalang and Sangardak rivers (Surkhandarya region of Uzbekistan) and leveling of boundary at the expense of addition the territory around Chapukh village (where the inhabitants were moved to the plain areas), located in the lower part of nature reserve in basin of Tankhas-Darya River.
  - Enlargement of Chatkal biosphere reserve at the expense of addition of territories of Shavasay River basin (e.g. rehabilitation of the reserve in the boundaries existed till to 1952); and all left-bank territories of Akbulak River.
  - Widening of Zaamin nature reserve at the expense of addition of adjacent northern slopes of Turkestan range and upper belts of Malguzar range.
- *Establishment of new protected areas:*
  - Creation of Pskem reserve in the upper parts of Pskem River.
  - Establishment of new reserve on the southern slopes of Chatkal range, closely to Maidantal part of Chatkal Reserve, and adjacent area of Angren Plateau in Namangan region of Uzbekistan.
- *Creation of ecological corridors among protected areas of neighboring countries:*
  - Ugam-Chatkal national park (Uzbekistan), Aksu-Djabagly nature reserve (Kazakhstan), new protected areas (Kyrgyzstan).
  - Chatkal nature reserve (Uzbekistan) and Besh-Aral nature reserve (Kyrgyzstan).
- *Establishment of transboundary park, included the existing nature reserves and proposed protected areas:*
  - Transboundary park which will cover Pskem, Ugam and Maidantal ranges (Kazakhstan, Kyrgyzstan, Uzbekistan).
  - Chatkal range (Kyrgyzstan, Uzbekistan).
- *Allocation of territories with limited regime of economic use:*
  - Creation and development of hunting manages with aim to conservation of habitats, rehabilitation and maintenance of the wild animals numbers, which will allow to conduct the strongly regulated trophy hunting on ungulates within special parts of such manages. The selection of such areas requires the special study and consultations with competent experts.

### ***4.3. Restriction of illegal hunting***

Improvement of the work of staff of inspections through the raising of their professional skill, training and material stimulation. Involvement of local communities to the species protection through interactions with local environmental inspections. In current conditions the interactions between nature conservation agencies and local military-frontier services are the effective methods of combating again poaching and contraband export of biological resources, therefore it is necessary to promote such cooperation. It is necessary to suppress through approved court orders and widely clarify in mass media all cases of poaching (illegal hunting) become known.

### ***4.4. Resolution of conflicts with local herders***

Because some cases of attacks of domestic live-stock by Snow Leopard are known, it is necessary to recommend the compensations of killed domestic animals through the special expert commission. Compensation for the killed animals should be given as services or food products on the example of practice applied in Mongolia and some other countries of the Snow Leopard range. Also it is necessary to develop the interaction of the workers (administrations) of protected areas and local communities raising public awareness and propagation. Perhaps, that in some cases it would be useful to use the experience of other countries of Snow Leopard range (Mongolia, India, Pakistan, Kyrgyzstan, Nepal) resolving the conflicts with herders through the

assistance in the building of safe corrals (pens) on the summer pastures and improving of control for the life-stock.

#### ***4.5. Popularization of Snow Leopard Conservation***

Mountains of the region play the important significance for the cultural and esthetic education of the young generations and development of human communities, presenting to human societies non-material base for the cultural growth and rest (recreation). Distribution of information, public awareness of local human populations in the questions of nature protection was undertaken during implementation of several projects supported by international organizations such as ISAR, SEN, ISLT and some others. Experience of work with local communities has shown that distribution of informational and educative materials has the important impact, especially on young generation. First of all, such measures as distribution of leaflets, booklets, posters and other popular editions on the local languages play the significant role. Organization of competitions in the schools of rural regions and Days of Parks have shown that local communities treat kindly and with understanding to the problems of wild animals conservation. So, it is necessary to support the practice of public awareness and popularization of ideas of wildlife protection on the permanent base.

#### ***4.6. Involving of local communities in the protection activity***

At present the practice of cooperation between nature conservation services, staffs of nature reserves and local communities is just beginning to be developed. First attempts to attract the inhabitants of territories adjacent to protected areas to participate in the resolving of biodiversity conservation problems were undertaken within the framework of TACIS project on Western Tien-Shan (2001-2003). TACIS project allowed to involve local communities through realization of small grants program, directed on the support of initiatives friendly to saving of biological diversity. In particular, attraction of local inhabitants to the protection of biological resources through the development of small business, tourism, etc. In the neighboring countries of the range (Kyrgyzstan, Mongolia, India, Pakistan) ISLT has assisted in the development of projects for the support of traditional handicrafts with using of natural native products (woolen manufacture, carpet production, ceramics, felt, etc.). Such practice serves as the good alternative and gives the opportunity to local communities to be developed without negative influence on the wildlife. Probably, in Uzbekistan it is also possible to study and apply such positive experience on the assessment of local market and forming of the scheme of sustainable use of environmental products.

#### ***4.7. Population monitoring and conducting of scientific researches***

In Uzbekistan, as it was shown above, the good basis for the development of monitoring of Snow Leopard populations is already exists, and, first of all, on the base of mountain strict nature reserves (Chatkal, Hissar, Zaamin). Positive results of such investigations were received in the course of implementation of GEF Western Tien-Shan transboundary project. However, the scientific investigations were conducted only on the area of Chatkal nature reserve within Uzbekistan and have the short-term character. Therefore it is possible to recommend the involvement of the staff of all nature reserves, covering by the range of Snow Leopard, and workers of zoological scientific institutions to conduct the monitoring of Snow Leopard groups in Uzbekistan on the permanent basis (development of scientific themes in strict nature reserves on study of Snow Leopard and its prey). For this it is necessary to train the personnel conducting monitoring and introduce the using of uniform international methods in the practices of survey and study of Snow Leopard in Republic. First step in such practical realization these actions can serve the preparation and publishing of the methodical guides and conducting of training for their use for staff of protected areas (scientific workers and rangers) and experts from scientific institutions. The necessary precondition for the practical realization of such program should become the creation and support of the information network for the collecting and treatment of

data on Snow Leopard, its prey species and habitats in Uzbekistan and its integration into existing international SLN- Snow Leopard Network.

#### ***4.8. Integration and regional collaboration***

The experience of practical cooperation in the field of biological diversity conservation at the regional and international levels has shown that the most significant results in the area of species protection can be reached under coordinated actions. Snow Leopard is the species for which the coordinated actions and regional cooperation is most significant owing to its distribution on the territories of many states and occurrence within transboundary areas. In this connection, the special value should be paid to coordination of activity at the regional level through joint conservation actions. For this purpose, it is possible to use the potentiality accumulated in the work of regional initiative group “Asia-Irbis”. Snow Leopard Network (SLN), initiated by ISLT, also serves to strengthen of international cooperation and exchange of information at the global level.

Using of instruments of interactions of International Conventions such as CITES and CMS it is possible to find the real solutions for the effective protection of Snow Leopard in the countries of range. Besides that, it is necessary to develop the regional cooperation – multilateral and bilateral – with neighboring countries for the reinforcement of combating with poaching and suppression of illegal trade of wild animals.

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