PARTICIPATORY MONITORING OF MARMOT DISTRIBUTION AND RESOURCE IN MONGOLIA

FINAL REPORT

RESEARCH PROJECT DURATION: June – December 2010

IMPLEMENTING ORGANIZATION: Mongolian Marmot Conservation Society

December, 2010

1 - Main results are summarized in this report from the final report in Mongolian language. Attachments and detail reports are only available in Mongolia language.
EXECUTIVE SUMMARY

The objectives of the study are to:

1. Create GIS linked database on marmot resource in Mongolia and assess and conclude current status of marmot resource.
2. Develop and conduct participatory monitoring on current distribution of marmot resource in Mongolia and analyze the result comparing with previous studies.
3. Conduct national level opinion poll on current status of marmot resource and effectiveness of government policy in last 5 years.
4. Develop and test a simplified marmot resource assessment methodology for local marmot conservation community groups, inspectors, rangers and environmental specialist.
5. Disseminate research findings to policy makers and the public.

Mongolian Marmot Conservation Society (MMCS) carried out the study between June and December 2010 accordance with TOR provided by Ministry of Nature, Environment and Tourism (MNET). Within the framework of the study, national survey on marmot resource status and effectiveness of policy measures was conducted, 2180 questionnaire analyzed involving more than 3400 people from 16 Aimags and 218 soums.

In cooperation with National Agency for Hydrometeorology and Environmental Monitoring, participatory marmot distribution mapping methodology was developed and used in all soums had marmot distribution in 1990. As a result, 608 maps indicating current marmot distribution and density collected from 206 soums and 954 local people participated the mapping exercise. The final result was compared with 1990 marmot distribution map.

GIS linked database on marmot distribution maps was developed including studies completed since 1990. The database is ready to be uploaded into National Environmental Database System for wider dissemination.

MMCS developed simplified marmot resource assessment methodology and tested with representatives from local marmot conservation community groups, local inspectors, rangers and environmental specialist in Tuv and Khentii Aimags. The methodology was intended to be used by local community groups and environmental officers.

Based on the results of the study 2 scientific articles were drafted and in process of submitting to a scientific magazine.
Follow up actions by MMCS:

1. Integrate marmot distribution database to Biodiversity database of National Environmental Information Centre of MNET for public access.

2. Submit participatory mapping methodology to Scientific Committee of NAMHEM for approval.

3. In collaboration with NAMHEM support establishing nationwide monitoring system for marmot distribution. Provide trainings if necessary.

4. Submit simplified marmot resource assessment methodology to Science and Technology Committee of MNET for approval.

5. Publish 2 scientific articles on findings of study.

6. Publish main findings of study on daily newspaper.
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1. Introduction

The marmot has a unique and fascinating cultural importance in both past and present, unlike in elsewhere. Today, the marmot recourse is threatened by overhunting and habitat destruction. The loss of this species would cause devastation across the entire ecosystems they support. Mongolia’s transition in the early 1990s — from socialism to democracy, and from central planning to a market economy — reversed a long-term trend of increasing state intervention in hunting management. State regulatory institutions are weakened during the socialist era, have been unable to fill the regulatory function that once controlled and organized hunting. Since the transition began in the early 1990s, widespread hunting has caused catastrophic declines of marmot resource.

In areas once there was abundant marmot resource, the sale of marmot skin or meat contributed roughly one-fifth to one-half of the income of herder-hunters. In Erdenetsagaan soum (Sukhbaatar aimag), a bag leader reported “In my bag, 21 households are living—surviving—on hunting and selling of marmot”.

The Ministry of Nature and Environment (former name) has banned commercial and household hunting of marmot since 2005 due serious decline of marmot population in entire range. Prohibition of hunting has been extended three times. Last extension was decided during a Minister’s council meeting on 08 December 2009 until end of 2012. The decision was largely based on results of a pilot study carried out by Mongolian Marmot Conservation Society, which was funded by small grant initiatives of NEMO-II.

Last 20 years of experience has proven that centrally planned hunting practice, which remnant from the social period is inapplicable for free market economy. In recent years, Mongolia has benefiting from a new emphasis on community-based natural resource management. Experts have proposed a range of creative options for delegating certain natural resources to local community. According to regulations issued by the Mongolian Ministry of Nature and the Environment in 2006, nokhrolol groups may contract with the government to assume certain management obligations from the Soum government for particular resources. These obligations include: assessing and monitoring of natural resource; stopping illegal activities; and setting up conservation funds.

In this report, we would like to present to you findings of a participatory marmot distribution and resource monitoring in Mongolia, demonstrative case study, which applied a participatory monitoring methodology for marmot resource in Mongolia.
We believe that these methodologies can be replicated in Mongolia and this information will provide a useful tool to those who will be formulating policies not only protect the marmot, but to protect the livelihoods of those Mongolian citizens who benefiting from marmot resource.

2. Literature review

J. Batbold and etc (2000), based on field studies conducted during 1987-1990, produced first map of Mongolian marmot distribution and density with scale of 1:1,500,000. According to the map marmot distributed 16 aimags 229 soums in Mongolia and total marmot resource was estimated as 23 million. This was only nationwide study on marmot distribution and density and it has been used as base year to compare our research results.

Since 2000, there were 9 studies were conducted on marmot distribution and density, funded by MNET, WWF, UNDP/ESBP, GTZ and NEMO-II/WB. The studies fully and partially covered 7 aimags out of 16 and used different census methodologies. These studies are not sufficient to provide status of marmot resource at national level, rather intended for their own specific research purpose and interest of funding organization. It would require significant amount of funding to cover nationwide study using conventional field sampling methodology by professional organizations and it would take years to complete. Therefore, using conventional method for nationwide monitoring is not an option, need to find more affordable, less costly method for generating nation wide dataset for marmot resource.
In this respect, participatory monitoring method is ideal for nationwide monitoring of marmot resource, where local people have a large interest and coupled with excellent field knowledge about marmot biology and ecology allows them to provide reliable information on marmot distribution, density and even more. In the next chapter we will present a participatory method used for marmot monitoring and its findings. We believe that the same methodology can be introduced current environmental monitoring programme of NAMHEM.

3. National level marmot distribution database and spatial analyses on changes of distribution areas.

A database on marmot distribution and density has been developed and spatial analysis conducted on changes of distribution areas. The database meets database standard of National Environmental Information Centre of MNET and it will be uploaded into the system for wider dissemination.

The database consists with 3 main information sets.

1) Marmot distribution and density of Mongolia in 1990. Developed be J. Batbold and etc in 2000. Baseline information was entered into GIS linked database. This information used as baseline.

2) Marmot distribution and density of Eastern aimags in 2002. The study was conducted in 2002 covering Khentii, Dornod and Sukhbaatar aimags and funded by “Eastern Steppe Biodiversity Project” UNDP/GEF.

3) Marmot distribution and density of Mongolia in 2010. The information generated using participatory mapping methodology.

The research team developed a participatory mapping methodology in cooperation with experts from NAMHEM. In this methodology, field information is generated by active participation of local people and passed experts for compilation and final analyzes. Relatively few specialists needed for this kind of approach and it is generally less costly in terms of time and money. We have provided methodology handout and 3 copies of 1:500,000 scale map of a soum and research packages were sent to local Hydrometeorological stations in 218 soums of 16 aimags by mail.

Participatory mapping guideline and maps. Research packages sent to Soums

We were able to gather reliable information on marmot distribution at national level. In total, 608 maps were received and 954 participants were involved in the mapping exercise. All maps were digitized into the database and produced final map of current status of marmot distribution. The final map was compared with previous studies and spatial analyses made on changes of distribution areas.

Table 1. Changes of marmot distribution area (1990 and 2010)

<table>
<thead>
<tr>
<th>Density</th>
<th>1990</th>
<th>2010</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>287,404.86</td>
<td>135,698.39</td>
<td>- 52.78% (declined)</td>
</tr>
<tr>
<td>Rare</td>
<td>264,008.30</td>
<td>58,039.99</td>
<td>- 78.01% (declined)</td>
</tr>
<tr>
<td>Occasional</td>
<td>22,362.57</td>
<td>47,955.34</td>
<td>1.14 (increased)</td>
</tr>
<tr>
<td>Common</td>
<td>1,033.99</td>
<td>29,703.06</td>
<td>27.72 (increased)</td>
</tr>
</tbody>
</table>

The distribution map produced using participatory approach and map produced in 1990 found to have good coincide. Local participants did not provided information about 1990 distribution and density and only based on their own knowledge about marmot distribution in their soums. Overall distribution and density patterns had well match in most of the Soums. Following sample maps shows changes of marmot distribution and overall match.

Marmot distribution in Arkhangai Aimag (1990 and 2010)
Although participatory monitoring by local informants from the Soums was found to be a good method for collecting information on marmot distribution, it has some limitations. It was unable to provide reliable information on marmot density. According to the density assessment information provided on the map, total area of common density has increased by 27 times compared with 1990 map. The density assessment is only indication of abundance of marmot in their know areas, therefore, it can not be used for nationwide assessment, can be applicable only limited regions.

**Marmot distribution areal in Mongolia reduced by 53% between 1990 and 2010. Specially, areas with rare density was declined by 78%.**

The level of involvement and interest in the exercise was also uniform among all the informants. We did not receive maps from few soums and quality of data and
marking on the map had poor quality. However, these can be improved by providing trainings to hydrometeorology technicians and frequent follow up on the progress of monitoring data collection. However, these limitations can not outweigh the importance of participatory monitoring methodology. We were able gather information on marmot distribution from almost all of the soums at national level relatively low cost in terms of money and time. With some improvements same methodology can used for marmot distribution monitoring at national level based on the existing environmental monitoring network of NAMHEM.

Trend of marmot resource in Eastern Mongolia

More information was available in eastern 3 aimags of Mongolia, namely, Khentii, Dornod and Sukhbaatar and we able to see trends in approximately 10 years interval. In 1990, total marmot distribution area was 103,015 km2. In 2002, it has been calculated 40,725 km2 and 60% reduced compared to 1990. In our study in 2010, total area of marmot distribution was 21,170 km2 and almost 50% of the population disappeared since 2002 and only 20% of the population remained compared to 1990.

4. Questioners survey on marmot resource and effectiveness of policy measure

Estimating illegal hunting of wildlife and monitoring of policy implementation could require large investment of time, funding and personnel to obtain reliable data. Examining several options, we concluded that mail surveys were most cost-effective method to obtain necessary information. The purpose of this questionnaire survey was to find out local people’s opinion on status marmot resource in their area and its trend in last 5 years (after the ban of hunting), and main climatic and human factors affecting marmot population in order to assess government policy measure. A total of 2180 questionnaires were mailed to hydrometereological stations in 218 soums of 16 aimags, which reported to had marmot distribution in 1990. A total of 2050 useable questionnaires were returned (94% response rate). Some of the questionnaires were filled based on a group discussion and some were filled by individuals and a total of 3,421 people were participated in the survey.

Findings

A commercial and household hunting of marmot was prohibited since 2005 due serious decline of marmot population in the entire range. Prohibition of hunting has been extended until end of 2012. 79% of the participants answered the ban of hunting was right measure and more than half of them agreed to continue prohibition of marmot hunting. Small proportion of respondents the answered it has no significant impact on protection of marmot resource and no need to be continued.
Policy measure to ban marmot hunting since 2005 was

If we look at the respondents by aimag largely agreed the ban of hunting was right measures, although, there were significant amount of participants answered it is too early to judge and/or it had no significant impact to protecting marmot mostly in the eastern part of the Mongolia. As we can see majority of local people it was effective measure to restore marmot population and needed to be continued.
Also mail survey result shows encourage result on the rate of illegal marmot hunting. Perhaps not surprisingly, the majority of responses (70%) agreed illegal hunting of marmot decreased or stopped after the ban of hunting since 2005. It make sense that nationwide prohibition of hunting is rather easy to be implemented by local law enforcers.

As we can see in following map, responses of illegal hunting is reduced in most of the aimags. Remarkably, the majority of respondents in Khentii aimag answered illegal hunting was increased, whereas in Khuvsgul aimag majority checks illegal hunting was stopped.
Questionnaire ask question to refine the reason for illegal hunting reduced in their area. About 70% of the participants nearly equally checked two answers for the question that are “ban of marmot hunting” and “marmot resource depleted”.

The questionnaire survey made significant regional distinction for the main reasons of reduced illegal hunting. As we can see western half of the region majority of
responses was illegal hunting was reduced due to ban of marmot hunting (green bars in the map), whereas most of the participants answered main reasons for reduced illegal hunting was due to depletion of marmot resources in their area (blue bars in the map).

Results of questionnaire survey shows that local people strongly supports government measure to prohibit marmot hunting and more than half of them agreed to continue this measure. The majority of respondents agreed that it reduced illegal hunting of marmot resource and about 38% of the participants indicate that marmot population is increase since ban of hunting.

5. A simplified marmot resource assessment methodology for local community group and environmental specialists.

One of the main expected results from the study is to develop and test simplified standard marmot census methodology involving local communities, inspectors, rangers and environmental specialists to enable local monitoring of marmot distribution and density. Within this objective, 3 trainings were organized to test a simplified methodology for marmot resource assessment and get feedback in the selected pilot sites as Murun soum of Khentii aimag, Bayandelger soum of Tuv aimag and Khustai National park. The trainings were organized specifically for officers of local agency for nature, environment and tourism, soum environmental inspectors, soum rangers, local marmot conservation communities. In total 15 participants were attended in the trainings.

Marmot resource assessment methodology training for local community members, inspector and ranger in Bayandelger soum, Tuv Aimag
Training for specialists of Khentii Aimag Environmental Protection and Tourism Agency, soum inspectors and rangers.
7. Overall conclusions and recommendations

1) A database on marmot distribution and density has been developed and spatial analysis conducted on changes of distribution areas. The database will be integrated to National Environmental Information Centre of MNET for public access.

2) A simplified marmot resource assessment methodology was developed and tested involving local communities, inspectors, rangers and environmental specialists. The methodology can be used for assessing and monitoring of marmot distribution and density by community groups and environmental officers at soum and aimag level. The methodology will be submitted to Science and Technology Committee of MNET for approval.

3) In cooperation with National Agency for Hydrometeorology and Environmental Monitoring, participatory marmot distribution mapping methodology was developed and used in all soums had marmot distribution in 1990. In this methodology, field information is generated by active participation of local people and passed experts for compilation and final analyzes. Relatively few specialists needed for this kind of approach and it is generally less costly in terms of time and money. As a result, 608 maps indicating current marmot distribution and density collected from 206 soums and 954 local people participated in the mapping exercise. The participatory monitoring method can be used within environmental monitoring programme of NAMHEM. MSSC will further cooperate with NAMHEM to support establishing nationwide monitoring system for marmot distribution.

4) Marmot distribution area in Mongolia reduced by 53% between 1990 and 2010. Specially, areas with rare density was declined by 78%. In Eastern Mongolia, a total area with marmot distribution was 103,015 km². In 2002, it has been calculated 40,725 km² and 60% reduced compared to 1990. In our study in 2010, total area of marmot distribution was 21,170 km² and almost 50% of the
The population disappeared since 2002 and only 20% of the population remained compared to 1990.

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