

**Recovery Program on Asiatic Black Bear**  
*(Ursus thibetanus ussuricus)* in the Republic of KOREA



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## History of Bear Population

- 1960's : Minimum Viable Population size
- 1970's : Intensive Hunting & Trapping  
'Natural Monument'(1982)
- 1980's ~: Poaching & Habitat loss  
Endangered Speies(1997)



## Current Distribution Map of Bear Population



northern mountains in  
Gangwon province :  
No more than **16** individuals

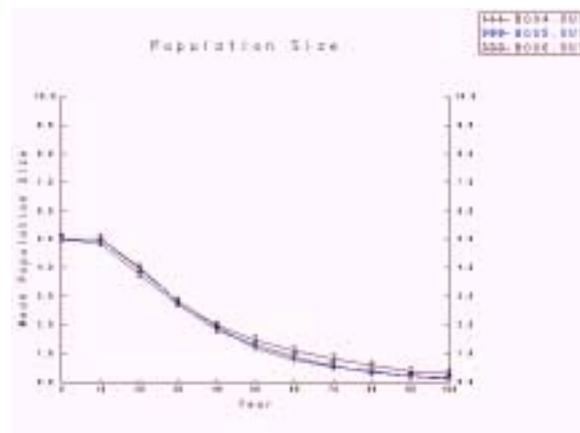
Chirisan National Park :  
**5~8** individuals

**Population and Habitat Viability Analysis** of the Korean Asiatic Black Bear population in Chirisan National Park

**Problems**

- Wild population is too small to be viable no matter the carrying capacity
- Insufficient intact habitat for a viable population of black bears in Chirisan National Park.
- Human impacts on population reduce viability
- Lack of useful models to assist an adaptive management program

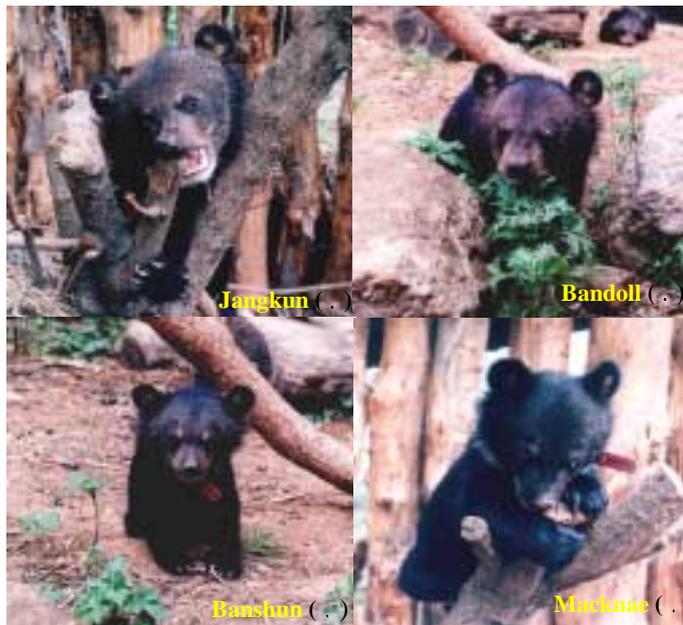
**VORTEX SIMULATION MODELING**



## Experimental bear cubs release project

### ■ Goal : Develop adaptive bear recovery methods in the Republic of Korea

- Experimental Phase : 2001. 4 ~ 2002. 5
- Method : Adaptive releasing method using bear cubs
  - Weaning    Adaptive training    Releasing
- Experimental Size : Four bear cubs
- Support : Ministry of Environment
- Conduct : Wildlife Biology Division of  
Institute of Environment Research



Weaning : 26. April ~ 28. Jun



Adaptive training : 28. Jun ~ 7. Sep



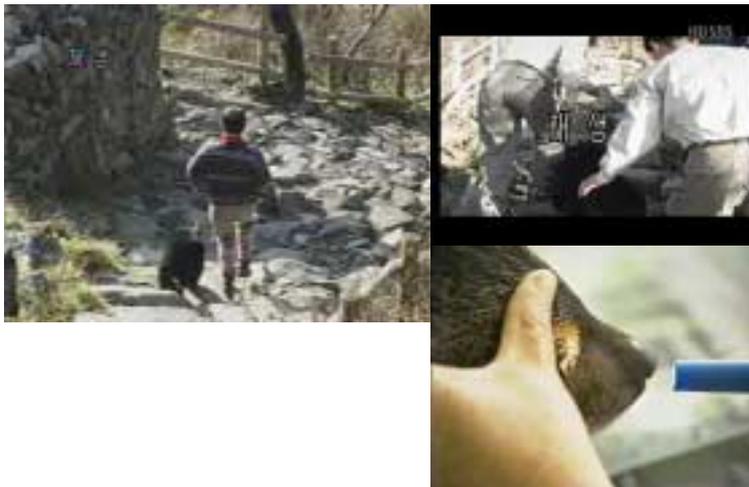




## Movements of Released Bear Cubs



## Imprinted by human





## Why Died?



## Hibernating





## Obtain & Lesson

### **Obtain**

- Scientific data to restore bear population
- Stimulated bear recovery plan in action

### **Lesson**

- Prevent bear from imprinting by human
- Eliminate mortality risk before releasing

## **Bear Recovery Plan**

- **Goal** : Establish viable population size : 51 individuals
- **Periods** : 2004 ~ 2012  
six cubs release each year from 2004 to 2008 (total 30 cubs)
- **Budget** : 20,000millions won (. 19millions us dollars)
- **Conduct** : Asiatic Black Bear Conservation Team  
of National Park Authority : 18 staffs

## **Took the First Step!**



**6 bear cubs (. 3, . 3) released on October 21,  
2004**



# **Recovery Program of Asiatic Black Bear (*Ursus thibetanus ussuricus*) in the Republic of KOREA**

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## 1. Introduction

Asiatic black bear (*Ursus thibetanus ussuricus*) occupied all of high mountainous areas of the Korean Peninsula until the 1950s. However, as results of extensive hunting and trapping, the population of Korean's bear has dramatically shrunken and has been classified as endangered species since 1982. The population of Asiatic black bear in the Republic of Korea occupies only two distinct areas: the Mt. Chirisan and the northern mountains in Gangwon province.

The research on the bear population status and its recovery in Chirisan National Park, adopted by the Ministry of Environment, was conducted by the Division of Wildlife Biology at the National Institute of Environmental Research from 1998 to 2001. As the results of the research, the bear population in Chirisan National Park was exactly unknown but no more than five to eight individuals survived and might not be a viable population for long-term survival because of isolated small population. As following the result of population and habitat viability analysis, reintroduction was the only method saving the bears in Chirisan National Park. Such as translocation or supplement of new population (gene pool) over minimum viable population for preventing genetic loss and becoming viable in long-term must be carrying out as soon as possible.

For recovering Asiatic black bears, a bear recovery pilot project with bear cubs was implemented in 2001. Following with the project results, recovery plan of the black bear in the Chirisan National Park has been currently worked on. In this report, I first document the results of the experimental bear cubs releasing project.

## 2. Experimental bear cubs release project

### 1) Weaning

Four bear cubs, three months old and originally from three different bear farms, had been growing in a small pen near bear farm since April, 26, 2001. The bear cubs had been weaned for two months, and were moved within the adaptive pen in forest before releasing to wilderness. The weaning pens were consisted with den with  $\Phi 50\text{cm} \times 1.5\text{m}$  PVC, water source, and other playing devices for bears' enrichment. Width 3.0m and height 1.8m fences were set up 5 faces and total measuring  $26\text{m}^2$ . Metal plates were installed in upper part of fences block bears escaping by climbing up. The feeding program was started with weaning. Forages can be got in wilderness was the final formula for bears within adaptive pen. Surely, bears were supplied lots of soft foods, such as vegetables, after weaning and before feeding natural forage. Bear cubs adaptive programs processed step by step.

### 2) Adaptive releasing method

The adaptable pen, measuring about 1.0 ha, was set up in Chirisan National Park in June, 2001. The bears were introduced in the pen to adapt themselves to wilderness before releasing from June 28 to September 7, 2001. Eight wires electric fences of 10,000-54,000 voltage pulse current were installed 2m high in forest and dark camouflage net was covered around pen to control visitors' attention. In trees, height less than 2m, metal plates were surrounded in their trunk prohibiting bears' climbing up. Fifty centimeter diameter and, 2m length PVC pipe was supplied for a shelter and den. Fresh stream water supplied. Daily managements were followed; feeding the formula due to program steps from outside pen twice a day. Feeding locations were changed everyday for developing the ability of searching food in wilderness. Also, any holes or tunnels beneath fences by bear were checked. Worrying to be imprinted human-being through contact, appearance and our scent, researchers put gloves and black clothes on and did not talk during routine management.

### 3) Behaviors within the adaptable pen

In addition to eat artificial formula given, the bears had eaten natural bear formula such as arrowroot (*Pueraria thunbergiana*), strawberry, acorn, ants larva, frogs, and snake, etc., which could be taken inside pen naturally. Playing each others, resting on bear platform of trees, and sleeping on den were normal behaviors observed; otherwise they were engaged in feeding. Observation cases of escaping behaviors such as climbing trees up, running away from

intruders, etc. became more popular depended on adaptive program passed. Digging a hole beneath electric fences was observed on August 2, 2001 and starting spy behavior that is watching and wondering their habitat around in and outside the adaptable pen. They came back inside in the evening, in the first day when wondering outside pens. However, a week before releasing, they stayed in forest outside pens for two or three days. The longer adapting time passed the longer staying outside forest. All four cubs had been inhabited and stayed together within forest, 500m apart the pen.

#### 4) Behaviors after released into the wilderness

The four eight months old bear cubs were released on September 8, 2001 in Chirisan National Park. All bears were fitted with transmitters for detecting and monitoring their location, behaviors, habitat, and mortality. They can get plenty of natural foods such as acorn, wild grapes, and the fruit of *Actinidia arguta*, etc. easily in habitat during the season, so, we could expect higher survival rates of the released bears. Until a month after released, four cubs inhabited forest within 500m apart their adapting pens. Then, three of them moved to Whaoum valley, and the other female moved to Munsoo valley. Home ranges of the bears were about 5km from releasing site and they inhabited and moved two groups as mentioned. Usually, staying for 1-2 weeks in one habitat, then moved to another better area, where is more available of natural food. The one female was observed. She was captured by national park's visitors and sent her back to national park office on October 23, 2001 after 50 days. She had been veterinary treatment for 10 days when 4 months old. Possibly, the hospital experience from veterinarian lead her more tamed behaviors to human-being than the other bears did. Another female was found as carcass during the recovery project. However, we could not expect mortality reason and death-day exactly. Poaching using snare might be fetal effect to her. On January 10, 2002, two males were identified in hibernation under rock outcroppings located elevation 950m within Whaoum valley. Hibernation of bear cubs in wilderness without mother's help might be recognized that the adaptive program can lead successfully bears survive in Chirisan. Since 2002, remnant two males separated and have occupied other areas individually. They were captured on spring 2004 and sent back to national park office. Now, the three bears live in the pen within national park office to educate public about bear ecology and recovery.

We can get lots of successful results and data through the recovery project of Asiatic black bears in Chirisan National Park during last couples of years. All these pilot project and data

might be important as basic, essential, and valueless information for systematic bear recovery and conservation programs in the future. And now, this recovery method has served as a prototype for subsequent bear recovery plan in the Republic of Korea.

### 3. Current Status

The Ministry of Environment has the long-term Recovery Plan of Asiatic Black Bears (*Ursus thibetanus ussuricus*) in Chirisan National Park till 2012. The minimum viable population of bears is expecting fifty individuals as following the population and habitat viability analysis. Reintroduction Bears into Chirisan National Park has been planned by the Ministry of Environment from 2004 to 2008. If support is adequate, stockings of six cubs will take place each year for the next two to four years. The bear cubs will be importing from Ussuriysk, in Russia.

First step was completed on October 21, 2004. The six cubs consisting of 3 females and 3 males were released fitted with transmitters after being adapted program in Chirisan National Park. Recovery programs are supported and completed by Asiatic Black Bear Conservation Team of National Park Authority.

### 4. Conclusion

The recovery project of Asiatic black bear (*Ursus thibetanus ussuricus*) in Chirisan National Park is the first official recovery plan for endangered species adopted by the Ministry of Environment. Therefore, awareness on nature of bear recovery and conservation was extremely high at the moment. At the same time, the successful recovery project offers hope and confidence that we can completely restore this population as sooner, and affect other endangered species recovery program crank in.

Recovery strategy with bear cubs is proved highly effective and successful program modified in the Republic of Korea. Also it can be taken respectively shorter time. Supplement of new gene pool and reaching up the minimum viability population is basic resolution in recovery animals from extinct situation. In addition to these advantages, sex ratio, breeding pool, genetic diversity, and translocation in extinct habitat and other recovery planning can be achieved systematically and effectively.

Biological information, scientific techniques, researchers' ability, and other component for the bear recovery are prepared in the Republic of Korea and it can be adjustable in a field.



However, there are still couples of problems to be solved before starting recovery assignments. There are in aspects of social, economic, and even politic problems. Nevertheless many people, NGOs, researchers in universities, government, and institute have an awareness and enthusiasm on nature currently, and doing our best effort to solve all problems in advance. The back bear recovery project can be proved successfully sooner or later.