

# Protection and Recovery Program for the Amami Rabbit

## *(Pentalagus furnessi)*

November 19, 2004

Ministry of Education, Culture, Sports, Science and Technology

Ministry of Agriculture, Forestry and Fisheries

Ministry of the Environment

### **I. Objectives of the Program**

The Amami rabbit (*Pentalagus furnessi*) is a monospecific species endemic to Japan and found only on Amami-Oshima Island and Tokunoshima Island. This species digs burrows mainly on slopes in virgin forest, and feeds near adjacent streams and secondary forests where the herbaceous plants, which that make up its diet, are abundant.

In the first half of the 1990s, the total population of the Amami rabbit was estimated to be 2,600 to 6,200 on Amami-Oshima Island and 120 to 290 on Tokunoshima Island. However, deforestation accompanying development and the invasion of alien species have contributed to a decrease in areas suitable for its habitation and reduced its distributional range on both islands. As of 2003, estimates put populations at 2,000 to 4,800 on Amami-Oshima Island and around 200 on Tokunoshima Island. Increasingly, the habitats on these islands tend to be fragmented, and certain geographically isolated populations are present in low densities. The risk of local extinction in these habitats is considered to be significant.

The objectives of this program is to ensure the stable survival of the rabbit in a natural state by clarifying the status of the species; maintaining and improving the environments necessary for the species; mitigating and removing factors that pose threats to the species; and exploring measures to recover wild populations, including reintroducing captive-bred animals.

### **II. Program Areas**

The distribution areas of this species on Amami-Oshima Island and Tokunoshima Island in Kagoshima Prefecture (including past habitats), as well as captive breeding areas described in Item 3 of Section III below.

### **III. Overview of the Program**

## **1. Understanding the status of the species and accumulation of knowledge on ecology and other matters**

The following surveys will be undertaken to appropriately and effectively implement the program, and to investigate emergency countermeasures in the event of alarming changes. These surveys will gather information on the status and trends of this species and accumulate knowledge on the ecology of the species and other aspects.

### **(1) Surveying and monitoring the status of the species**

The program will include fecal pellet surveys to estimate density and to monitor distributions. It will also collect and organize information on the status of the populations, including reports of sightings.

### **(2) Clarifying the biological characteristics**

The program will collect and organize knowledge on the species already available. Using trail cameras and radio telemetry, the program will also seek to gather more information on the home range of individual animals, typical home environments, breeding status, and feeding habits.

### **(3) Monitoring habitats**

The program will monitor the state of habitat invasion and predation by species likely to disturb the populations of this species, including mongooses, feral dogs, and feral cats, as well as disturbances attributable to viruses and other diseases and disease vectors, including black rats and domestic rabbits.

The program will monitor and collect information on anthropogenic changes in habitats, including deforestation and road construction.

### **(4) Understanding suitable environments and potential threats**

The program will analyze the results of surveys (1), (2), and (3) above to understand environmental factors that are suitable for the species or potentially affect the species. It will also seek to geographically elucidate the relationship between these environmental factors and the status of the species.

## **2. Habitat maintenance and improvement**

The stable survival of this species in its natural state will require a balanced combination of virgin forest, streams, and secondary forest. Human activity and predation by alien species, such as the mongoose, threaten the survival of this species, although the actual extent of the damage to date is not completely understood. For this reason, the program will implement the following measures based on the knowledge acquired through Item 1 above.

### **(1) Clarifying the distribution of alien species and investigating countermeasures**

The program seeks to clarify the distribution of alien species and their impacts on this species. It will also investigate countermeasures, including efforts to eliminate these species, and implement the appropriate measures. The program incorporates measures to improve the management of domestic animals such as cats and dogs (including hunting dogs).

## **(2) Habitat maintenance and improvement**

Based on knowledge provided by experts, particularly experts in the ecology of this species, the program will seek to maintain and improve suitable habitats and breeding conditions for this species; expand these habitats by ensuring the continuity of fragmented habitats; and investigate other effective measures to address the degradation of the natural habitat and declining populations.

## **3. Captive breeding, etc.**

The total population of this species is currently in decline. Some geographically isolated populations are critically endangered at the local level. In these cases, simply strengthening protective measures in natural habitats may be insufficient to recover wild populations. For this reason, based on knowledge provided by experts, particularly in the ecology of this species, the program will seek to establish techniques for captive breeding and to recover wild populations through reintroduction. These efforts will rely on individual animals rescued from injury or disease, or captured in the field and transported to the appropriate facilities.

The necessary individuals will be captured with due care to minimize impacts on wild populations. When using captive-bred individuals for species reintroduction, the program will account for genetic diversity issues to prevent the adverse effects of inbreeding.

When reintroducing individuals, the program will take special note of the irreversible effects on the survival of the wild population, including any changes in behavior attributable to captive breeding and infections by pathogens carried by reintroduced individual animals. Before these efforts, drawing on the knowledge of experts in the ecology or other aspects of this species, the program will thoroughly assess the need for reintroduction, along with various other issues, including methods, effects, and follow-up monitoring. At the same time, to optimize its actions, the program will seek to build consensus among the concerned parties.

## **4. Measures for effective promotion of the program**

### **(1) Promotion of education and awareness-raising activities**

To achieve effective progress with the program, understanding and cooperation is crucial on the parts of the national government, relevant local governments, parties carrying out various business activities, and the citizens including local residents. The program will promote public awareness on the need for protecting the species and the progress of the program. It will help foster better understanding and cooperation in

protecting the species, as well as to facilitate the development of voluntary conservation activities of the community,

**(2) Patrol, etc. of the habitat**

To prevent actions leading to the adverse effects on the species survival, whether due to indiscreet entry into the habitat, anthropogenic changes in the habitat, release of alien species, or other actions, the program will monitor the species' habitats and surrounding areas, collect information, and take appropriate countermeasures.

**(3) Consideration for business activities**

The knowledge, which is gained through Items 1 and 2 of Section III, will be used when business activities are conducted in the habitats of this species and surrounding areas to ensure that sufficient consideration be given to the conditions required for its continuing survival.

**(4) Cooperation to achieve effective progress with the program**

When implementing the program, efforts will seek to facilitate cooperation and collaboration among the national government, relevant local governments, experts in the ecology or other aspects of this species, local residents and landowners in the species' habitats and adjacent areas.