

**Bogor Agricultural Institute (IPB)****THE DEVELOPMENT OF SCIENTIFICALLY BASED MANAGEMENT OF UJUNG KULON NATIONAL PARK, WEST JAVA**Haryanto R. Putro

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**FRAMEWORK**

Designing a scientific-based management of Ujung Kulon National Park (UKNP) needs appropriate understanding of ecological phenomena, especially concerning the species present and their functions; ecological dynamics in the park; aesthetic and cultural values of the park; and socio-economics and culture condition of people living surrounding the park. Zoning as an important management tool has to be based on a set of data related to the above aspects to ensure that conservation and utilization functions of the park can be harmonized. In addition, strengthening institutional linkages of the park management with other local formal and informal institutions will be the key to management success. Within this framework, IPB programs do not deal only with Javan Rhino. However, programs and plans on Javan Rhino management will be the main focus of IPB until the year 2005 (*see basic framework below*).

**OBJECTIVE**

Specific objectives of IPB programs on Javan Rhino management are:

1. To the maintain the Javan rhino population at a certain size which can ensure the long term survival of the species through conservation management practices.
2. To the increase natural carrying capacity of Javan rhino habitat in Ujung Kulon National Park.

**ONGOING RESEARCH**

Research carried out by IPB:

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| 1991/1992-1996/1997 | <p>Pilot Project on the Habitat Management of Javan Rhino (<i>Rhinoceros sondaicus</i>) in Ujung Kulon National Park, West Java. Funded by Competitive Grant Research "(Penelitian Hibah Bersaing)", Directorate of Higher Education, Ministry of Education and Culture.</p> <p><b>Research Team:</b> Harini Muntasib (PI), Haryanto R. Putro, Burhanuddin Masy'ud, Dones Rinaldi and Harnios Arief.</p> |
| 1996/1997-1998/1999 | <p>The Ecology of Langkap (<i>Arenga obtusifolia</i>) and Its Roles in Javan Rhino (<i>Rhinoceros sondaicus</i>) Habitat Degradation in Ujung Kulon National Park, West Java. Funded by The Integrated Selective Research (RUT) III, Ministry of Research and Technology.</p> <p><b>Research Team:</b> Haryanto R. Putro (IPB, PI), Agoes Sriyanto (UKNP) and Soma Trenggana (Bakosurtanal)</p>          |

1997/1998-1999/2000

The Competition between Javan Rhino (*Rhinoceros sondaicus*) and Banteng (*Bos javanicus*) in Ujung Kulon National Park, West Java. Funded by Competitive Grant Research "(Penelitian Hibah Bersaing)", Directorate of Higher Education, Ministry of Education and Culture.

**Research Team:** Harini Muntasib (PI), Haryanto R. Putro, Burhanuddin Masy'ud, Dones Rinaldi and Harnios Arief.

**PROPOSED RESEARCH AND ACTION:**

**Brief Description of Proposed Researches:**

1. Analysis of Habitat Utilization of Javan Rhino (*Rhinoceros sondaicus*) in Ujung Kulon National Park, West Java.

This research is aimed determining the spatial aspects of Javan Rhino ecology in Ujung Kulon National Park, especially the habitat utilization by the rhino. This research will be used as the basis of Javan Rhino habitat management.

2. Study on Food and Faecal Content of Javan Rhino (*Rhinoceros sondaicus*) in Ujung Kulon National Park, West Java.

This proposed study aims to look at the faeces content, estimate the digestive capacity and examine the food plant species available for the Javan Rhino. Comparing and analyzing new data with available information from previous research is expected to provide some insight in the estimation of Javan rhino carrying capacity in Ujung Kulon National Park. The research objectives are:

- 2.1. To reveal Javan Rhino food plants species through observation of the fiber fragments in faeces.
- 2.2. To identify the characteristics of vegetation types where the Javan Rhino eliminate faeces
- 2.3. To estimated faeces age based on the value of C/N ratio
- 2.4. To describe Javan Rhino faeces characteristics
- 2.5. To reveal chemical composition of faeces
- 2.6. To estimate Javan Rhino digestive capacity in the wild

3. Comparative Study On Langkap (*Arenga Obtusifolia*) Invasion Within Forest Ecosystems In Java and Sumatera: A Case Study In Ujung Kulon National Park, Cikepuh Nature Reserve, Riau and Nias Island.

Investigations carried out by IPB team in Ujung Kulon National Park provided evidence that Langkap invasion could disturb the forest ecosystem in the park and further could cause degradation of Javan rhino habitat. The invasion of the species in the park has been considered by many researchers, such as Schenkel and Schenkel-Hulliger (1969), Schenkel and Ramono (1978), Amman (1985), Hommel (1983, 1987) and Muntasib, et..al. (1991-1996). However, detailed research specifically aiming to identify the invasion of the species in the park began only in 1996 and will be conducted until 1999. In search of management action alternative of the Langkap invasion in Ujung Kulon National Park, a comparative study on Langkap invasion outside the park should be carried out to identify the nature of biological, ecological and invasive characteristics of the species within forest communities. This research aims to:

- 3.1. Identify the nature of biological, ecological and invasive characters of the species within forest communities outside Ujung Kulon National Park.
- 3.2. Provide strong ecological considerations for Langkap management in Ujung Kulon National Park.

4. The Role of Palm Civet (*Paradoxurus hermaphroditus*) in Langkap Invasion in Ujung Kulon National Park, West Java.

The role of the common palm civet in Langkap seed dispersal has been clearly demonstrated in the previous research, however, the lack of data base on the species has caused the unanswered question: To what extent does the common palm civet play significant roles in Langkap invasion?. This question will be impossible to answer without data on the civet population and ranging behaviour. This research aims to:

- 4.1. Estimate the common palm civet population in Ujung Kulon National Park
  - 4.2. Identify the home range size of the common palm civet in Ujung Kulon National Park
  - 4.3. Map Langkap seed distributed through the civet faeces
  - 4.4. Build a model of Langkap distribution pattern based on the civet faecal dropping
5. Study on Javan Rhino (*Rhinoceros sondaicus*) Behavior Using Canopy Tract Methods and Indirect Observation

Javan Rhino behavior need to be evaluated on the basis of more reliable methods. Canopy tract methods and indirect observation methods will be developed by IPB in this study.

6. The Improvement of Javan Rhino (*Rhinoceros sondaicus*) Census Methods

Two possible improvements of current Javan Rhino census methods are proposed, namely: (1) determining the optimum transect distance in tract count method; and (2) developing a more comprehensive and systematic application of camera trapping. The first will be carried out through a comparative study on four different transect distances (0.5, 1.0, 1.5 and 2 km) at the same time. The second will be carried out through installation of approximately 60 units of camera trap in primary and secondary tract of Javan Rhino. Each camera unit will consist of: Yasicha 109 Programmable camera with normal lens, a lens cap, flashlight, own-designed mechanical sensor, battery and charger and own-designed camera protection cabinet.

### Brief Description of Proposed Actions:

1. Implementation of Javan Rhino Habitat Management

Guidelines for Javan Rhino Habitat Management have been formulated by IPB based on 5 years research (1991/1992-1996/1997). Small scale management experimentation is proposed as follow:

- A. Langkap cutting in 5-10 ha area based on spotted-gap or random gap methods.
- B. Planting of Javan Rhino food plant in unproductive habitat and Langkap cutting area.

2. Grazing Ground Management

Minimizing interaction between Javan Rhino and Banteng will directly decrease the possibility of competition between the two large herbivores. Grazing ground management using controlled burning will be implemented to concentrate Banteng population in Ujung Kulon Peninsula.

3. Installation of Automatic Climate Station

Climatic instability could be a strong factor affecting habitat dynamics of Javan rhino. Installation of three automatic climate stations in Cidaun or Peucang, Cibunar and Karangranjang will provide the best description of climate variation in Ujung Kulon Peninsula. No climate measurements are now being collected in Ujung Kulon. The nearest climate station is not representative to Ujung Kulon peninsula. There will also be monitoring of microclimate components at upper and middle canopy, and near ground will also be carried out to provide a data base for the Javan Rhino habitat management actions.

4. Participative Human Resource Development

The UKNP manager is now lacking human resources with appropriate capabilities for analysis of problems related to Javan Rhino and National Park management. IPB in collaboration with BCI will provide two qualified persons who will stay in Taman Jaya to help the head of UKNP in the decision making process.

5. Development of Computerized Data Base

IPB will develop a computerized data base, both for spatial and attribute data, to support the UKNP manager in decision making. Vegetation mapping with special emphasis on Langkap distribution is now in process. Additionally, a GIS approach will be applied for important national park features, including plant and animal distribution.

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