Analysis Corridor Area for the Tiger Conservation in the Dangku Landscape, Sumatra, Indonesia

Dudy Nugroho
(SCGIS 2011)
1. We have 8 species of tiger in the world. But 3 of them extinct already
   (Caspian/Persian tiger – extinct 1970’s)
   Armur/Siberian tiger: 320 kg (270–330 cm)
   Bengal tiger: 300 kg (300 cm)
   Indochinese tiger: 200 kg (255-2.85 cm)
   South Chinese tiger: 150 kg (260 cm)
   Sumatran Tiger: 120 kg (240 cm)

2. Indonesia has 3 species of tiger:
   * Pt. balica – extinct 1940’s,
   * Pt. sondaica – extinct 1980’s,
   * Pt. sumatrae ??
1. Since 1997’s there was economic problem and cause land use conversion and loss some endanger species include their habitat and their prey
2. Population of *P.t. sumatrae* decreasing about 70 % about 3 decade (national documentation)
3. Threat:
   - Degradation/deforestation forest (fragmented)
   - Hunting
   - Trafficking (Symbology, medicine, magic etc)
1. There are many TCLs (Tiger Conservation Landscape) and its was priorities into the big national park by the government and consolidate with the GTI (Global Tiger Initiative), but there are many small “island” as tiger habitat still need to conserve (protect) and monitor.

2. Dangku’s landscape around 3,200 km² within protected forest, plantations & community inside.
Corridor Concept

**Economic**
(Industrial / Community Plantation)

**Conservation**
(Natural resource is unrenewable and limited)

**Social- Culture**
(Government & Community)

**Natural Resource**
(Government/Private/NGOs)
1. Biodiversity monitoring for the tiger and their prey
2. Make tiger corridor area inter-habitat (Protection forest & plantations)
3. Using tiger as flagship program for complex conservation in the landscape scale with participative collaboration
Method

1. Pre-analysis the landscape area matching with the national tiger zone survey
2. Field survey using:
   - Transect
   - Camera trap
   - Groundtruthing (Image analysis)
3. Database tabulation
4. Maps tabulation process
5. Imagery analysis
6. GIS analysis for corridor scenario
National Tiger Protocol

Survey Grids
- @ 289 km² (17 x 17 km)
- Require ≥ 10% tiger habitat

Random Cells
- @ 18.06 km² (4.25 x 4.25 km)
- Require ≥ 30% tiger habitat

Data Collection
- 1 km replicate (= 1 occasion)
- 100m data recording
- 1 rand. Cell / team to go
- ≥ 4 km & all possible habitat

Analysis
<table>
<thead>
<tr>
<th>Collecting Data</th>
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<tbody>
<tr>
<td><strong>Camera Trap</strong> (density)</td>
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<tr>
<td><img src="image1" alt="Image of camera trap with person setting it up" /></td>
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<td><img src="image5" alt="Image of camera trap with person monitoring it" /></td>
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<td><img src="image9" alt="Image of camera trap with person monitoring it" /></td>
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<tr>
<td><img src="image13" alt="Image of camera trap with person monitoring it" /></td>
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</tbody>
</table>
Corridor Analysis

Ecology Data:
1. Tiger (buffer 2 km)
2. Tiger prey (buffer 1 km)
3. Land cover (Forest & Non-Forest as 1st tier)
4. Main River (buffer 200 meters)
5. Core Area (Wildlife reserve & protected forest)

Support:
1. 10% of Forest Concession (mandatory)
2. HCV of Oil-palm plantations
3. Climate Change Map as Provincial Government Programs

Topology Data:
1. Settlements (buffer 2 km)
2. Roads (buffer 500 meters)

National Tiger database (NTRP)
Tiger Corridor Scenario
Negotiation & implementation process

Habitat Map
Mandatory Map
Threat Map
Biodiversity

Male 1

Male 1? / New male?

Female 1

Female 1/2? New?

Female 2

ZSL

Malo 1

20/07/2011
Forest 1989
Forest 2002

Hutan restorasi (PT Reki)

HL

HL

HL

SM Dangku
Forest 2009

Slide 15
Forest 2020??

- Hutan restorasi (PT Reki)
- SM Dangku
- HL

20/07/2011
There will be 3 zones area:
1. Core Area
2. Corridor area
3. Buffer Area

**CORE AREA: ± 34%**
1. SM Dangku (Wildlife reserve)
2. PT REKI (Restoration Forest)
3. 3 Protected Forest (HL Dangku-2, HL Kedempo, HL Sungai Jernih)

It's should be 40% area can be used for the conservation
CORRIDOR AREA:

Forest Concession (Plantation): ± 48 %
1. PT. Sentosa Bahagia Bersama (SBB)
2. PT. Bumi Persada Permai (BPP)
3. PT. Pakerin
4. PT. Wahana Agro Mulia (WAM)
→ At least 10% from the area should be managed as conservation area (Government regulation)
→ HCV-F area in the oil-palm plantation
→ Artificial corridor can be managed at Concession

SUPPORTING AREA for economic & social purpose (rest of the 38% production forest & community land)
Corridor Scenario

There are small “island” area could be used for the connecting “corridor” between the big “island” habitat (REKI & SM Dangku)

That needs negotiation process with the forest concession companies & local communities for the corridor concept implementation (using the map as “language tool”)

It need more detail information about tiger home range & the number of tiger in the Dangku's Landscape
Thank You
(Terima kasih)
Characterizing human-tiger conflict in Sumatra, Indonesia: implications for conservation
Philip J. Nyhus and Ronald Tilson

Abstract Human-tiger conflict occurs in Indonesia but there is little recent information about the scope of the problem, and adequate policies are not in place to address the conflict. Published and unpublished reports of conflict between Sumatran tigers Panthera tigris sumatrae and people and their livestock were collected and analysed to characterize the extent, distribution and impact of human-tiger conflict on the island of Sumatra, Indonesia. Reportedly, between 1978 and 1997, tigers killed 146 people and injured 30, and killed at least 870 livestock. Conflict was immediate disturbance areas such as multiple-use areas where tigers and people coexist. In Indonesia it is needed to develop a definition of problem tigers, a to track conflicts, and a process to respond immediate conflicts when they occur. Without a better understanding of human-tiger conflict and a concerned effort actively address the problem, future landscape conservation and management efforts may be jeopardised.

Keywords Human-wildlife conflict, Indonesia

Crouching tigers, hidden prey: Sumatran tiger and prey populations in a tropical forest landscape

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Human–tiger conflict: A review and call for comprehensive plans
ICH
Society, Bronx, New York, NY, USA

Strategies and Action Plan for Tiger Conservation in Sumatra
Panthera tigris sumatrae
2007 - 2017