The Impacts of Forest Fires on Orangutans in Sabangau

Shari Mang
PhD Student
University of Exeter
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Outline

- Sabangau fires and orangutans
  - Study site
  - Objectives
  - Results
  - Conclusions
- Current research
Master’s Dissertation
**Study area**

- **LPF** = Low pole forest
- **MSF-I** = Mixed swamp forest interior
- **MSF-P** = Mixed swamp forest perimeter
- **TIF** = Tall interior forest
- **VLC** = Very low canopy
Objectives

1. Estimate habitat loss due to fire and the associated change in orangutan population.

2. Assess the long-term population density trends with a focus on the change in density after each fire season.

3. Assess whether female home range size differs before and after a fire in a neighbouring unburnt area.
Forest loss due to fire

- Maximum likelihood classification on Landsat images pre- and post-fire
- Forest loss: 2006 > 2015 > 2010
- 830 km² decrease in forest cover
- MSF most affected
  - 22% MSF-I
  - 45% MSF-P
Orangutan density

- Monthly and annual density data provided by BNF
- Density significantly increased -> MSF-P, MSF-I, and TIF
Forest cover & orangutan density

- Forest cover explains little of the variation in density ($R^2 = 0.297, p < 0.001$)
Forest cover & orangutan density

- Orangutan density significantly increased post-fire for 9 events in MSF
- Increase post-fire -> displacement from affected areas
- Displacement could lead to refugee crowding

* $p < 0.05$; ** $p < 0.01$; and *** $p < 0.001$
Forest cover & orangutan density

- Change in population and forest cover varies among sub-habitats
- Spatial distribution of fires will influence number of individuals displaced and quality of the remaining habitat
Conclusions

- Forest cover decreased by 830 km$^2$ from 2006 to 2015
- Orangutan density has increased since 2002
- Forest cover has a limited influence on orangutan density
- Orangutan density often increases post-fire
- The area of each sub-habitat lost is important, not just the total area
Current Research

Source: Shari Mang
Current research

- Assess mammal diversity in the Rungan
  - What is the diversity of mammals?
  - How does diversity compare to other parts of Borneo?
- How does heterogeneous landscape influence biodiversity?
- Areas of biological/conservation importance?
- How does land conversion impact community and biodiversity?
- Map and classify the forest habitats
- Nest surveys: drone vs transects?

Source: Alys Granados
Questions?