Strengthening Natural Resource Management with New Protected Area Connectivity Tools

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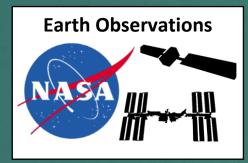




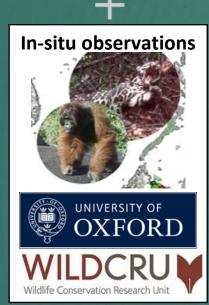








Project Structure





Analysis, Modeling, and DSS
Development

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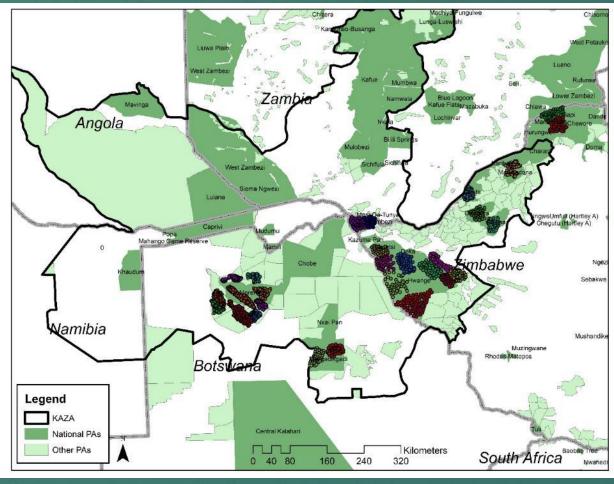
Top - Participatory watershed management planning exercise led by USFS, Mount Elgon, Kenya. Bottom -Participatory land use planning facilitated by WCS and USFS, Tanintharyi Region, Myanmar.

Study Areas

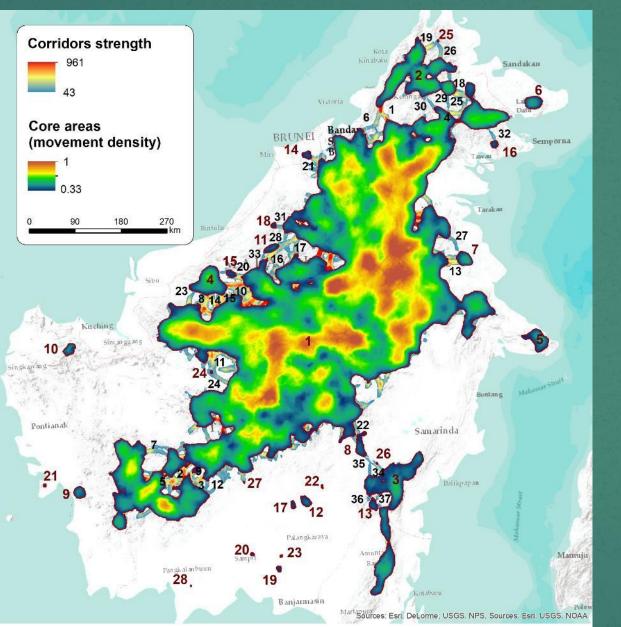
Southeast Asia

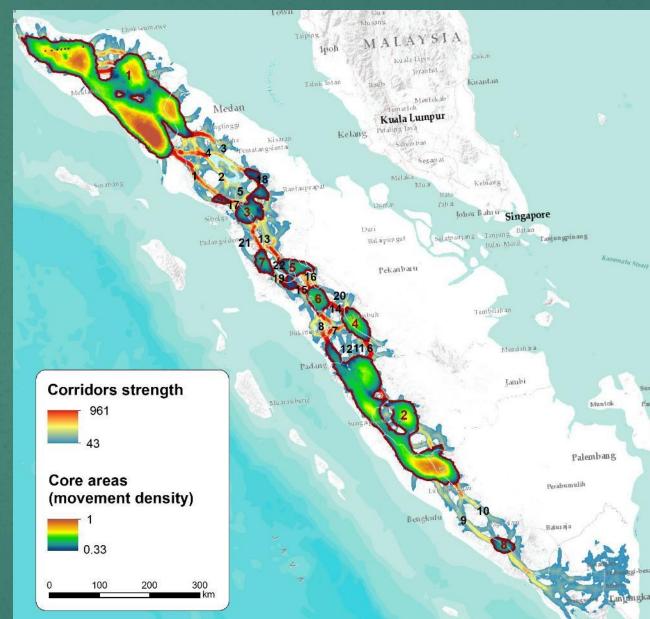
MYANMAR LAOS CAMBODIA PENINSULAR MALAYSIA BORNEO SINGAPORE WildCru camera trap grid locations

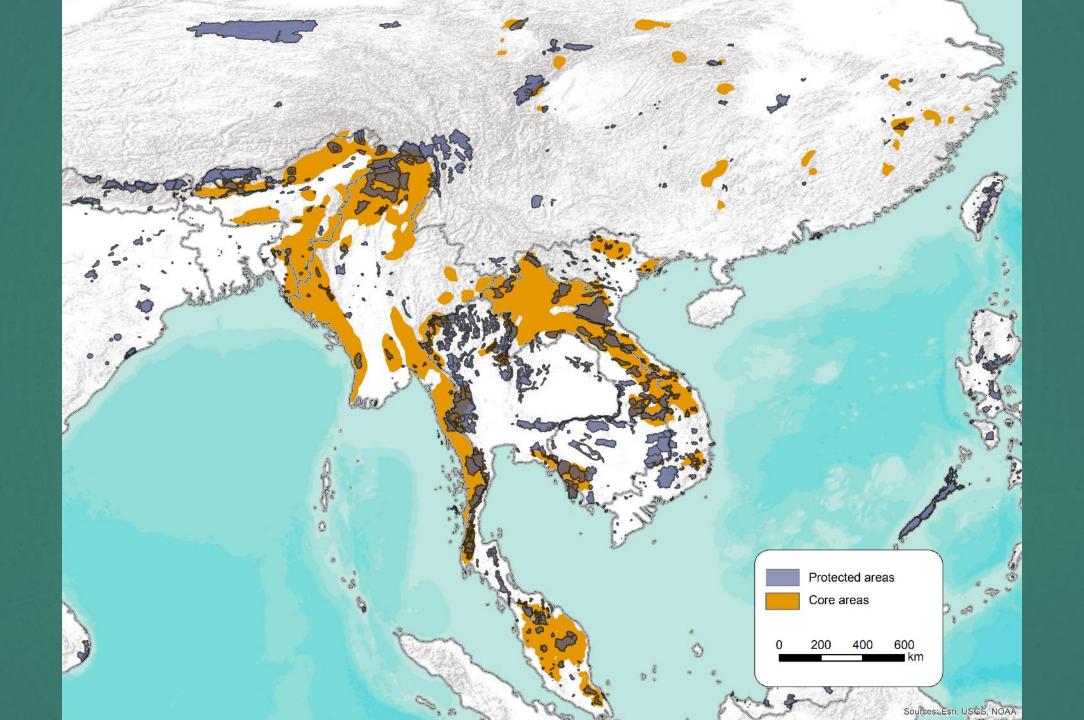
Kavango-Zambezi Transfrontier Conservation Area



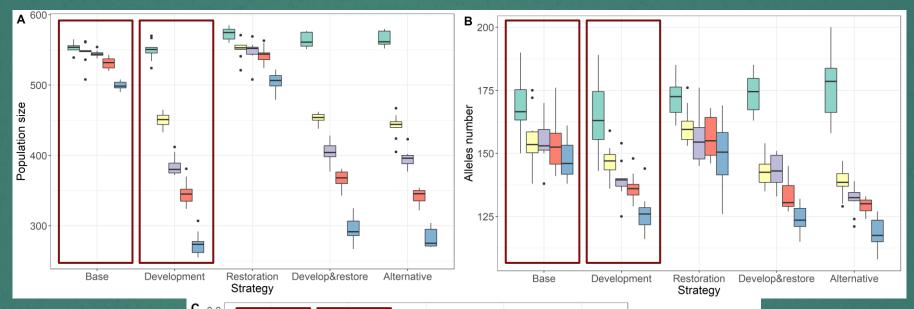
Scenario Planning and Decision Support



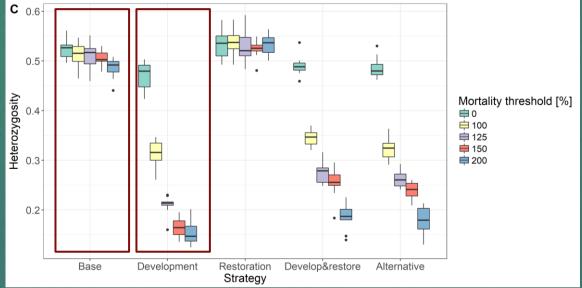




Scenario Planning and Decision Support



Sunda clouded leopard population scenarios generated by CDPOP Kaszta et al. 2019



CDPOP: A spatially explicit cost distance population genetics program (Landguth and Cushman 2010)
UNICOR: a species connectivity and corridor network simulator (Landguth et al. 2012)

Project Progress

Project performance metrics

-8 focused on access to connectivity info, planning processes, law enforcement

USFS-IP facilitated meetings with KAZA Wildlife Working Group

Project concept endorsed by Directors of Wildlife from the five KAZA countries - Angola, Botswana, Namibia, Zambia, Zimbabwe

Project Progress

CDPOP

- Transitioned to python3
- hdf5 interoperability for large landscape analysis

Habitat structure mapping with GEDI and GEE for habitat suitability modeling

EE app

Focal Species

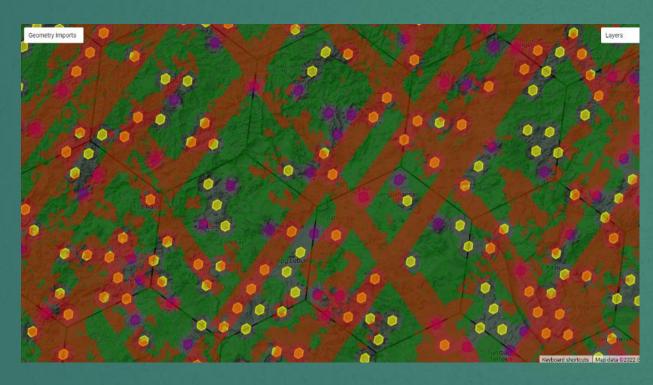
Southeast Asia

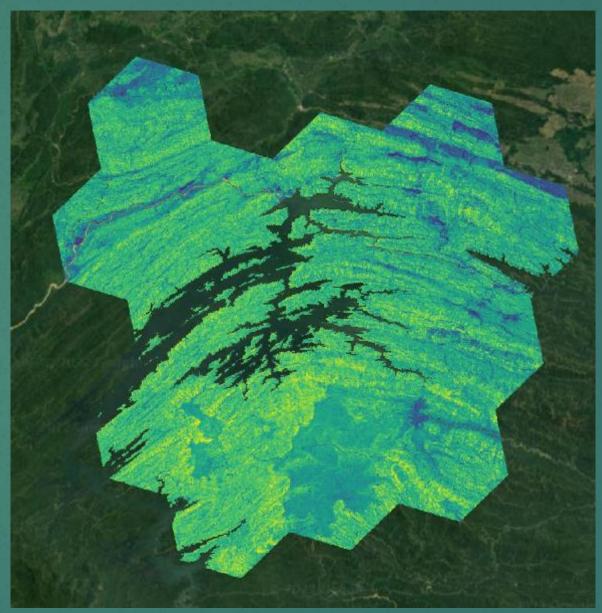
wild boar, northern red muntjac, Malayan porcupine, leopard cat, Asian elephant, large Indian civet, Asian palm civet, sun bear, northern pig-tailed macaque, yellow-throated marten, gaur, sambar, clouded leopard, dhole, Asiatic brush-tailed porcupine

Africa

lion, elephant, wild dog, leopard, buffalo, eland, sable, giraffe, zebra, wildebeest, red lechwe, waterbuck, roan, cheetah, gemsbok

Canopy Height Mapping

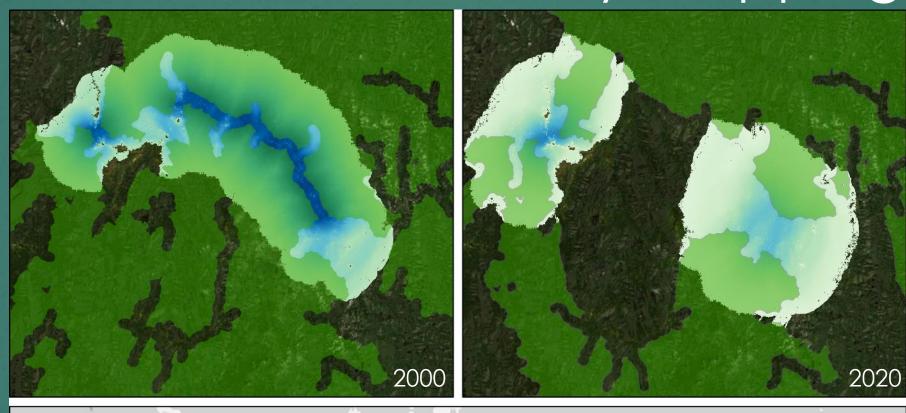




EE Viewer

Earth Engine Apps Search places **Clouded Leopard Core** Мар Satellite Layers **Habitat and Connectivity** This tool maps clouded leopard (Neofelis nebulosa) core habitat and connectivity for baseline and development scenarios in Myanmar. Use the tools below to explore differences in core habitat and connectivity. For more information see Kaszta et al. 2020 Select layers to display **Habitat-Connectivity Legend** Low High **Protected Areas Habitat Suitability** Google Keyboard shortcuts | Imagery ©2022 TerraMetrics | 200 km L Terms of Use Core Habitat (baseline)

Structural Connectivity Mapping





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Next Steps

Identify scientific, governmental, and other collaborators in the KAZA landscape to form a working group e.g. Okavango Research Institute, U. of Botswana; Univ. of Namibia; Lupane State U.; U. of Zimbabwe

Build on existing WildCru relationships for outreach to ministries in Malaysia, Indonesia, Laos, Thailand

Continue software development to integrate habitat structure -> suitability -> landscape genetics -> habitat connectivity -> scenarios



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Global Earth Observation & Dynamics of Ecosystems Lab https://goetzlab.rc.nau.edu/