**Case Study Title:** 20 Years and Counting: Adaptive Management of Chimpanzee Habitats in the Greater Gombe Ecosystem, Tanzania

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**Location:** Greater Gombe Ecosystem, western Tanzania

**Summary:**

For more than twenty years the Jane Goodall Institute (JGI) has been working with local communities, governments, other NGOs and science and technology partners to learn how to design landscapes that better work for people and chimpanzees in the Greater Gombe Ecosystem, Tanzania. Today many of those woodland habitats are coming back thanks to natural regeneration in village forest reserves managed by the local communities. This case study covers lessons learned from using Open Standards for the Practice of Conservation to help JGI continuously adapt and improve its community habitat conservation strategies in Gombe and elsewhere.

**Public Overview of Case Study:** <https://docs.google.com/document/d/1WXt0tSDKfEIbraoG4jcAL7hVx0MDEap2Lfdtu50a3FM/edit?usp=sharing>

**Setting the Scene:**

Greater Gombe Ecosystem (GGE) is an area of 676 km2 located on the eastern shore of Lake Tanganyika in the Kigoma region of western Tanzania. It includes Gombe National Park and adjacent community lands covering 14 villages located between Kigalye in the south to the Burundi border in the north, and bordered in the west by Lake Tanganyika. Gombe National Park was established in 1968 and covers a land area of 36 km2 (3,569 ha) and 20 km2 (2,072 ha) of Lake Tanganyika. Although small, Gombe is rich in biodiversity, with a mosaic of evergreen and semi-deciduous forests, dense woodlands, open woodlands including Zambesian miombo (Collins & McGrew 1988), grasslands with scattered trees, and upper ridge grasslands with rocks along the crest of the rift escarpment (Goodall 1986). Gombe is the longest continuously running great ape research site in the world. Dr Jane Goodall’s studies of wild chimpanzees (*Pan troglodytes schweinfurthii*) began in 1960.

Over the last few decades, however, there has been significant deforestation and environmental degradation outside the park. In addition to habitat loss and fragmentation, other threats – primarily disease – have put the chimpanzees at an even higher risk. While internationally renowned, the chimpanzees of Gombe became one of the most threatened wild chimpanzee populations in the world (Pusey et al. 2007). Deforestation in hilly terrain of the ecosystem also resulted in unstable watersheds, threatening local settlements with more frequent and severe landslides and flash floods. Daily lives for many become increasingly difficult as water quality and quantity was reduced and fuel wood become increasingly scarce.

Since 1994, JGI has collaborated with the local communities and Kigoma District Council to slow and reverse environmental degradation in villages around Gombe National Park through the Lake Tanganyika Catchment Reforestation and Education (TACARE, pronounced "take care") project. TACARE project staff quickly learned that community buy-in was essential for success. Therefore, JGI added agriculture, health, social infrastructure, community development and clean water components to the range of interventions it employed. By 2004, after 10 years of operation, the TACARE project has been successful in opening the doors to communities and has contributed to increased awareness, positive attitudes, and behavior changes with potential benefits for long-term conservation (Anderson et al. 2004). However, TACARE interventions have not kept pace with the growing human population, which increased from 2.4%/year in 1988 to 4.8%/year in 2001 (Tanzania 2003 census estimate for Kigoma region). Despite conservation efforts, deforestation rate in areas important for chimpanzees has also doubled from 87.5 ha/year from 1972 through 1991 to 171 ha/year from 1991 through 2003 (Anderson et al. 2004, Pusey et al. 2007, Pintea 2007). TACARE interventions were also initially focused mostly on areas close to village centers. However, remote sensing and GIS analysis conducted between 2000 and 2004 showed that most chimpanzee habitat loss occurred in areas away from the village centers (Pintea 2002, Anderson et al. 2005).

In 2004 a USAID funded evaluation of TACARE project recommended that JGI’s conservation actions should embrace a landscape approach and be more spatially focused and strategic, reducing the most direct and important threats in geographic areas with the most benefits to chimpanzees (Anderson et al. 2004). In 2005 JGI started to use Open Standards for the Conservation of Biodiversity to begin articulating a systematic Conservation Action Plan (CAP) to guide strategic restoration and maintenance of the GGE for the benefit of chimpanzees, natural resources and sustainable human livelihoods (JGI 2009). Initial technical support was provided by the Nature Conservancy (TNC). TNC’s Terry Cook, Elizabeth Gray, Michelle Brown, Margo Burnham, Caroline Byrd, Gwynn Crichton, Ryan Luster, Tim Tear and others facilitated a series of conservation planning workshops that led JGI and partners step by step through the OS process. The plan included chimpanzee communities, stable watersheds and village forest reserves as conservation targets. The final stage of the 1st iteration of the GGE CAP was coordinated and compiled in 2009 by JGI’s Rob Sassor and JGI core planning team in Kigoma, Tanzania.

**Results and Lessons Learned:**

The OS process facilitated JGI and partners to prioritize threats, adapt and improve conservation strategies. For example, tree planting and nurseries used to be one of the main JGI strategies to address forest and chimpanzee habitat loss from logging. However, the planning process revealed that logging was not the main threat. Incompatible conversion of forests and woodlands to food crops, settlements and infrastructure development were the most important threats to chimpanzee habitats outside Gombe. Therefore, while tree planting and nurseries could still be an important strategy to support people’s livelihoods and need for timber, additional strategies were needed in order to stop chimpanzee habitat loss in GGE. This finding led JGI to adapt and develop a new strategy: to develop and implement participatory village land use plans and establish zones for agriculture and community-managed village forest reserves that benefit watersheds, people and chimpanzees.

The OS planning process helped prioritize spatially where village forest reserves should be ideally located. A core conservation area was defined that, if protected, would substantially increase the viability of chimpanzees inside and outside the park and stabilize the watersheds to support human livelihoods. This core conservation area was delineated by overlaying historic distribution of chimpanzee presence, potential suitable habitats, deforestation, steep slopes, footpaths, roads, streams, watersheds, and density of human structures mapped from historical satellite, high resolution 60-centimeter QuickBird imagery and participatory mapping of expert knowledge. Informed spatially by the GGE CAP, participatory village land-use plans were implemented by the communities according to Tanzanian laws and with full involvement of government and community stakeholders. JGI facilitated the process and provided technical support, including maps and geospatial tools to record and manage spatial data. The planning process followed seven steps and required villagers to settle any existing land disagreements and agree on village boundaries and how land resources located within the villages should be used to meet specific human livelihood needs and conservation objectives.

At the end of the land use planning process in 2009, 13 out of 14 villages within GGE completed their participatory village land-use plans, which became ratified by the Tanzanian government. Local communities voluntarily assigned 9,690 hectares, or 26 percent, of their village lands as Village Forest Reserves. Guided spatially by the CAP vision, these reserves were interconnected across village boundaries to minimize fragmentation and covered 68 percent of the priority core conservation area defined by the GGE CAP. Since 2009, JGI has been continuously engaged in facilitating community-based organizations (CBOs), developing bylaws and building local capacity to implement village land-use plans and restore and manage newly established village forest reserves. This includes community forest monitoring patrolled by the village forest monitors (FM) using GPS enabled Android smartphones and tablets and field data collection using Open Data Kit (ODK) app. As the result of these integrated spatial planning and community monitoring efforts, natural regeneration in miombo woodlands can be now detected in some village forest reserves such as Kigalye, Kagunga, Mtanga and Mgaraganza using 2005 and 2014 DigitalGlobe satellite imagery.

As part of the adaptive management process, the GGE CAP was reevaluated in 2015 and merged with larger ongoing planning efforts in the region as part of the Gombe-Mahale Ecosystem (GME) process covering an area more than 20,000 km2. Satellite imagery were used again to assess the effectiveness of habitat strategies by quantifying forest loss comparing to 2000 baseline. The analysis confirmed that overall village land use planning efforts have been successful in protecting miombo woodlands but failed to protect riverine evergreen forests. Evergreen forests are an important habitat and food source for chimpanzees and a separate conservation target in the GME CAP. Decision makers agreed that new or additional conservation strategies are needed to eliminate the threats to evergreen forests. This work is in progress.

Another insight was that in some villages, especially north of Gombe, land use planning strategy has been less effective in eliminating habitat loss. Some villages have been struggling with implementing their village land use plans. For example, Mkigo and Nyarubanda decided to split in four villages because of the 2015 presidential elections and are working now on updating their land use plans. These village areas have been also more affected by the new flux of refugees escaping recent insecurity in neighboring Burundi. JGI is in the process of using ongoing OS process and adapt its habitat strategy once again in order to address these emerging new threats to habitats in GGE.

**Scalability and Transferability:**

The work completed and the lessons learned from the Greater Gombe Ecosystem have been successfully applied to other areas such as Masito-Ugalla and the Greater Mahale Ecosystem planning processes in Tanzania as well as to other JGI project sites in Uganda, Congo and eastern DRC. The 2nd iteration of the plan used global forest loss data derived annually from 30 meter resolution Landsat satellite imagery. It demonstrated that such big remote sensing datasets are sensitive to effectively measure habitat indicators from a small village forest reserve to the entire chimpanzee range in Africa. This opens new opportunities to scale up, standardize, coordinate and share how we measure and map habitat viability, threats, and strategies and how we evaluate conservation success and adapt.

**Further Information:**

GGE CAP. 2009 <https://drive.google.com/open?id=0B166ZPGrNnAUbFhuVFFxWkFQSXM>

GME CAP. 2015 <https://drive.google.com/file/d/0B166ZPGrNnAUanlIb2lxUHVzTVE/view?usp=sharing>

Pintea L. 2016. Geodesign Restores Chimpanzee Habitats in Tanzania: The Jane Goodall Institute Implements GIS in Local Contexts to Help Communities Regenerate Woodlands. ArcNews. <http://www.esri.com/esri-news/arcnews/summer16articles/geodesign-restores-chimpanzee-habitats-in-tanzania>

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| **Key Words *(select all that are relevant)*** | **Put x if Relevant** |
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| - Conceptualize the situation | x |
| - Plan actions and monitoring | x |
| - Implement actions and monitoring | x |
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| - Capture and share learning | x |
| - Full cycle adaptive management | x |
| - Other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
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| **Specific Tools/Approach Used** |  |
| - Evaluation / audit | x |
| - Evidence-based conservation | x |
| - Spatial conservation planning | x |
| - Structured decision making |  |
| - Status measures | x |
| - Effectiveness measures |  |
| - Passive adaptive management | x |
| - Active adaptive management |  |
| - Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| **Specific Topics Addressed:** |  |
| - Human wellbeing | x |
| - Climate change |  |
| - Community-based conservation | x |
| - Marine conservation |  |
| - Freshwater conservation | x |
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