TERMS OF REFERENCE – GIS Officer

Reporting to: Protected Areas Program Director

Introduction

Ya'axché staff are expected to work cooperatively with others, demonstrate flexibility in organizing work, have good communication skills and demonstrate thoughtfulness in decision making. Staff must be non-judgmental and receptive, live up to the values of integrity, respect and professionalism while reflecting genuine concern toward both the biosphere and the communities where Ya'axché is active.

Purpose:

The **GIS Officer** is responsible for the analysis of satellite data and preparation of annual Land Use & Land Cover (LU/LC) change report, monitoring and reporting of Maya Golden Landscape (MGL) fires through the Fire Information for Resource Management System (FIRMS), development of remote sensing assessments for forest connectivity in southern Belize and continued support for the implementation of the Spatial Monitoring And Reporting Tool (SMART) within the protected areas program. The position is also responsible for providing technical and practical training in the use of mapping technology such as GPS/GNSS devices, ArcGIS/QGIS software and drones. The officer will ensure efficient data management through the establishment of a GIS database and providing technical support to field teams for mapping exercises including ground-truthing. All mapping tasks include but are not limited to the creation of new maps and updating current maps. The GIS Officer maintains strong relationships with the COL, PAM and Science program directors.

Position Level: TBD

Primary Relationships

- Supervisor: Protected Areas Program Director
- Program Directors
- Program Managers
- Ya'axché Field Staff
- Beneficiary Communities

Key Areas of Responsibility

- Land Use and Land Cover (LULC) change analysis and related remote sensing assessments
- GIS database development and management
- Field mapping for all program areas

Main Duties and Responsibilities:

The GIS Officer is accountable for:

1. Identifying and gathering satellite data from adequate sources for land use change monitoring.

2. Conducting LU/LC change analysis in the MGL through remote sensing and other means.
3. Creating an annual internal report on LU/LC.
4. Conducting a fire risk and fire activity analysis from the MGL for annual reporting.
5. Identifying areas of concern in order to provide adequate support to farmers and field staff.
6. Conducting ground-truthing and verification of remote sensing analysis and results where applicable.
7. Exploratory analysis for forest connectivity in the MGL with a focus on structural and functional corridors.
8. Providing technical support for upgrades and continued development of the spatial components of SMART used under the Protected Areas Program.
9. Developing and maintaining Ya'axché's GIS database.
10. Continuous updating and creation of raster and vector files related to all aspects of protected areas and community work at Ya'axché.
11. Implementing GPS and GIS training for Ya'axché's field staff based on need.
12. Providing support for field mapping exercises in protected areas and farmlands.
13. Exploring the use of drones in mapping and other GIS related applications at Ya'axché.
14. Creating of maps for multiple uses as the need arises.
15. Represent Ya'axché at national GIS and related events.
16. Other tasks that may arise from time to time at Ya'axché.

Outcomes and Performance Indicators to be achieved by the position:

Outcomes	Performance Indicators
1. *Land Use Land Cover Change* Timely collection, collation and analysis of satellite data and other datasets which results in reliable remote sensing analysis that allows for objective and evidence-based recommendations for resource management in the MGL.	▪ Annual LULC report for the MGL is produced with recommendations and implications for management action ▪ Annual fire risk assessment for the MGL is produced with recommendations and implications for management action. ▪ 1 exploratory analysis for forest connectivity within the MGL is conducted
2. *Spatial Monitoring and Reporting Tool* Effective and Efficient SMART database management and implementation. SMART database, maps and geospatial components	▪ SMART's spatial components both at the database and field collection level are up to date and taking advantage of new developments from the SMART Community

updated regularly on a fixed schedule.	
3. *GIS data management and field mapping support* A well-functioning GIS and remote sensing framework supporting Ya'axché's protected areas management and community outreach and livelihoods programs. GIS database is updated and maintained regularly on a fixed schedule. Trainings in GPS use for all field staff. All mapping exercises are guided by adequate technical support. All relevant maps are updated and published internally once a year.	▪ Ya'axché's GIS database is maintained and kept relevant with up-to-date advancements in GIS technology and methodology ▪ 2 trainings in GPS use for relevant staff are conducted ▪ 2 trainings in basic GIS use for relevant staff are conducted ▪ Mapping exercises lead to the creation and updating of essential map products for Ya'axché's programs
4. *Other* Exploratory work on the use of drones in conservation and biodiversity monitoring.	▪ Exploratory use of drones in forest cover monitoring is maintained ▪ Exploratory use of drones in biodiversity monitoring is maintained ▪ Exploratory use of drones for enforcement and compliance activities is maintained

Place(s) of work:
- Main Office: #3 Ogaldez Street, Punta Gorda, Toledo District, Belize
- Golden Stream Field Station, Golden Stream Community, Toledo District, Belize
- Maya Golden Landscape in southern Belize

Qualifications:

Education Level, Experience, and Specific Skills:

- Minimum of a bachelor's degree in relevant subject area (Geography, GIS, Remote Sensing and related fields)
- 2-3 years' experience in remote sensing, particularly analysing satellite imagery
- Proven record in technical writing and data analysis
- Experience using ArcGIS, QGIS and remote sensing software and platforms, such as Google Earth Engine, ERDAS, ENVI or others
- Strong interest in conservation and community development
- Ability to work independently and as part of a team
- Knowledge of SMART and its application is an asset but not essential

- Strong interest in conservation and community development
- Excellent communication skills, verbally and in technical writing
- Excellent organizational ability to get work done through formal and informal channels and use resources efficiently and effectively
- Excellent interpersonal skills to build collaborative relationships and network effectively

Desired:

- Masters/postgraduate degree in GIS and/or remote sensing
- Experience using GPS for the creation of spatial data sets
- Ability to conduct field work in forest settings as deemed necessary
- Experience working for conservation NGOs or with applications in the forest sector
- Knowledge of conservation and community development issues in developing countries
- Knowledge of Google Earth Engine, JavaScript, or other coding language
- Sensitivity to the needs of persons with low literacy and/or English as a Second Language (ESL) when creating written materials
- Self-motivated and able to work independently with minimal supervision
- Ability to work with a wide variety of individuals (including a multicultural in-house team) by using tact, diplomacy and flexibility, resolve conflict effectively
- Ability to lead and operate as part of a team in a dynamic environment, as well as self-motivation, drive and enthusiasm to work under own initiative
- Ability to work under pressure, manage multiple tasks and allocate time effectively to meet internal and external deadlines
- Ability to think strategically, logically and to apply common sense, meticulous attention to detail, dependable and reliable, with a positive attitude
- Effective team player and committed to support and improve the overall work of Ya'axché
- Valid driver's license