Monitoring, evaluating, and improving the effectiveness of wildlife monitoring and protection

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Introduction

Anti-poaching patrols still a thing

Linked with intelligence gathering

With limited resources available for protection

We need data to monitor impact and inform decisions
SMART – Spatial Monitoring And Reporting Tool

• A tool for measuring, evaluating, and improving the effectiveness of anti-poaching activities and site-based conservation activities.

• Designed to efficiently collect, store, communicate, analyze and report on anti-poaching efforts at a protected area level.

• SMART focuses on ranger-patrols data, as part of their day-to-day work recording wildlife encounters, poaching encounters and other threats to wildlife and habitats.

• With this information, a protected area managers are able to identify hotspots, Allocate resources where they are most needed, empower staff, and provide useful feedback to ranger teams.
GLOBAL IMPLEMENTATION OF SMART
The SMART Partnership today

A global consortium of NGOs and conservation agencies have committed to the development of SMART software. All put effort in introducing SMART in place, developing, training and supporting.
SMART implementation Timeline

2011
- Partnership founded
- Software development initiated

2012
- First global training of trainers
- First Asia Regional SMART Training

2013
- SMART Version 1.0 released
- Regional Training in Indonesia and Tanzania
- Thailand and Gabon adopt SMART at National level

2014
- Mobile Data collection functionality launched
- Panthera, Peace Parks joins SMART partnership
- Uganda, Peru, Belize, Bhutan adopt SMART at National level

2015
- Ecological Monitoring functionality added
Global implementation of SMART

150+ Sites, 31 countries, 8 National-wide programs
Highlights for SMART

- Smartconservationsoftware.org forum on google groups
- Currently SMART v3.2.1
- SMART products are free, open-source and non-proprietary.
HOW SMART WORKS
Adaptive SMART approach

1. Ranger patrols
2. Data input
3. Data analysis & Reporting
4. Feedback & Evaluation
5. Strategic Planning
SETTING UP SMART
What you need to set up SMART

• **Human-resource** – Management, Field managing officer\(^1\), Rangers
• **Hardware equipment** – Computer, Handheld devices\(^2\)
• **Software** – SMART, Cybertracker
• **Knowledge** – Five (5) days up to two (2) weeks training\(^3\)
• Help and Support

\(^1\) Optional but *good practice* for local management of data and equipment
\(^2\) *GPS with Datasheets* or *SMARTPHONES* for data logging
\(^3\) Usually separate *Database mgt* and *Data collection* training sessions
What data is needed?

Data is collected on

1. Patrol and team set up
2. Wildlife and Carcasses encounters
3. Human signs and arrests

- Standard information is collected about each observation → Datamodel.
- Each observation is geo-referenced (with date/time/GPS point), either automatically in hand held devices or recorded on paper /GPS.
1) Patrol Set-up data

- Information about the patrol set up (metadata).
- Collected at the beginning of each patrol / day.

Information needed:
- Names of rangers participating in the patrol, leader
- Timestamp* of patrol start
- Location* of patrol start
- Patrol type and Transport type (foot, car, boat)
- Patrol mandate
- Objective of patrol

* Automatically recorded by handheld device
2) Wildlife Observations

- Live animal sightings
- Carcasses/skeletons
  - Species,
  - Age of animal; Sex,
  - Age of carcass;
  - Cause of death;
  - any Trophies;
3) Human activities

Different human signs potentially observed inside a PA. Including: People; camps; snares; equipment; vehicles; cattle; ...

Most observations requires information about:
  What it is?
  Where is it?
  What action did the patrol team take?
  A measure of size/numbers?
  If it is recent or old sign?

Often encounters several observations together eg a person with cattle; or bush meat in a camp with guns in. = one incident with several with subcomponents of data to collect.
Data collected using two methods:

1) **GPS with datasheets**
   At each observation a GPS point is marked and information recorded on standard datasheets

2) **SMART phones or tablets**
   At each observation the information is recorded onto a smartphone or tablet.

Data needs to be clear, specific, accurate – which is why we use special datasheets or standardised data model
SMART Data collection options cont.

Handheld devices - Smartphones or tablets

- Automatically geo-referenced
- Quicker data entry/management
- Concise data as app guides ranger through screens
- Photos linked to each observation
- Does not need telephone network
- Language interchangeable
What happens to collected data?

Data collected is entered into SMART software on a computer.
Types of information:

1. **Spatial data** – Waypoints and patrol tracks eg: Patrol coverage
2. **Summary data-tables** eg: Number of confiscations
3. **Graphs and charts** eg: trend in patrol effort

**SMART** converts data into information
How do you get data out of SMART?

SMART can be easily queried for any info that is in it.
SMART have a built-in reporting functionality where you can create dynamic report templates that can query the database for **DATA TABLES**, **MAPS**, **TEXT STRINGS** and **GRAPHS** for a specified period of time.

SMART Reports Can be exported into:

**MS Word, Spreadsheets or PDF** files for Editing and presentation.
Additional plug-ins and modules

- Ecological monitoring
- Planning
- Intelligence
- Entity tracking
- Independent Incidents
EXAMPLES
Monitoring Patrol Coverage

Determine which areas were patrolled and which were neglected.
Monitoring efforts per individual

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<th>Rangers</th>
<th>Number of Patrols</th>
<th>Patrol Distance (km)</th>
<th>Number Of Hours</th>
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</tbody>
</table>

*Manyara Ranch, Jan to Mar 2016*
Motivation of Rangers

Patrols by Transport Type - 2015

- Foot Patrols
- Motorbike patrols
- Vehicle Patrols
Patrol planning

![Manyara Ranch Patrol Coverage September 2015](image1)

![Manyara Ranch Patrol Coverage November 2015](image2)

Legend:
- Patrolled areas [107]
- Unpatrolled areas
- Vector grids 1000m [260]
- Foot patrols
- Motorbike patrols
- Vehicle patrols
- MR OP areas
- Tarmac road
- MR River7
- Dams
- Observatory points
- Dams
- Roads

HONEYGUIDE

SMART

ICT4D CONFERENCES
Monitoring illegal activities

Determine where Hotspots are, Areas that need more surveillance
www.smartconservationsoftware.org

THANK YOU!