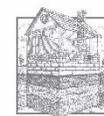




Assessing and Managing Cultural Heritage Risk

www.graypape.com



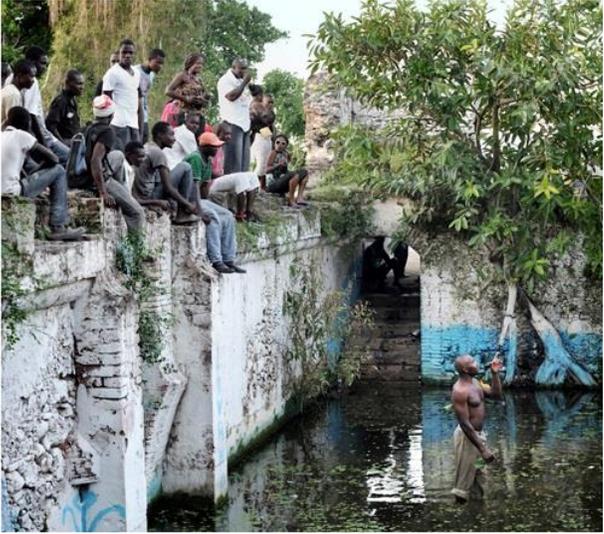
GRAY & PAPE
HERITAGE MANAGEMENT

- Defining Cultural Heritage Risk
- Defining Cultural Heritage Risk Vectors
- Modeling Cultural Heritage Risk –Work in Progress
- Managing Cultural Heritage Risks Using Modeling Tools –
Work in Progress

What Does Cultural Heritage Risk Look Like?



What Does Cultural Heritage Risk Look Like?



Why Are CH Risks Significant?

Key issue -international lender guidance and practice lean on Chance Finds Procedures

- Many sites found during construction activities
- The sites that are found can cause very significant delays and cost impacts
- Developers, regulators, and lenders are put at risk
- Many heritage sites are damaged during construction, or receive minimal mitigation because of the emergency situation



Why Are CH Risks Significant?

Potential for significant reputational risk

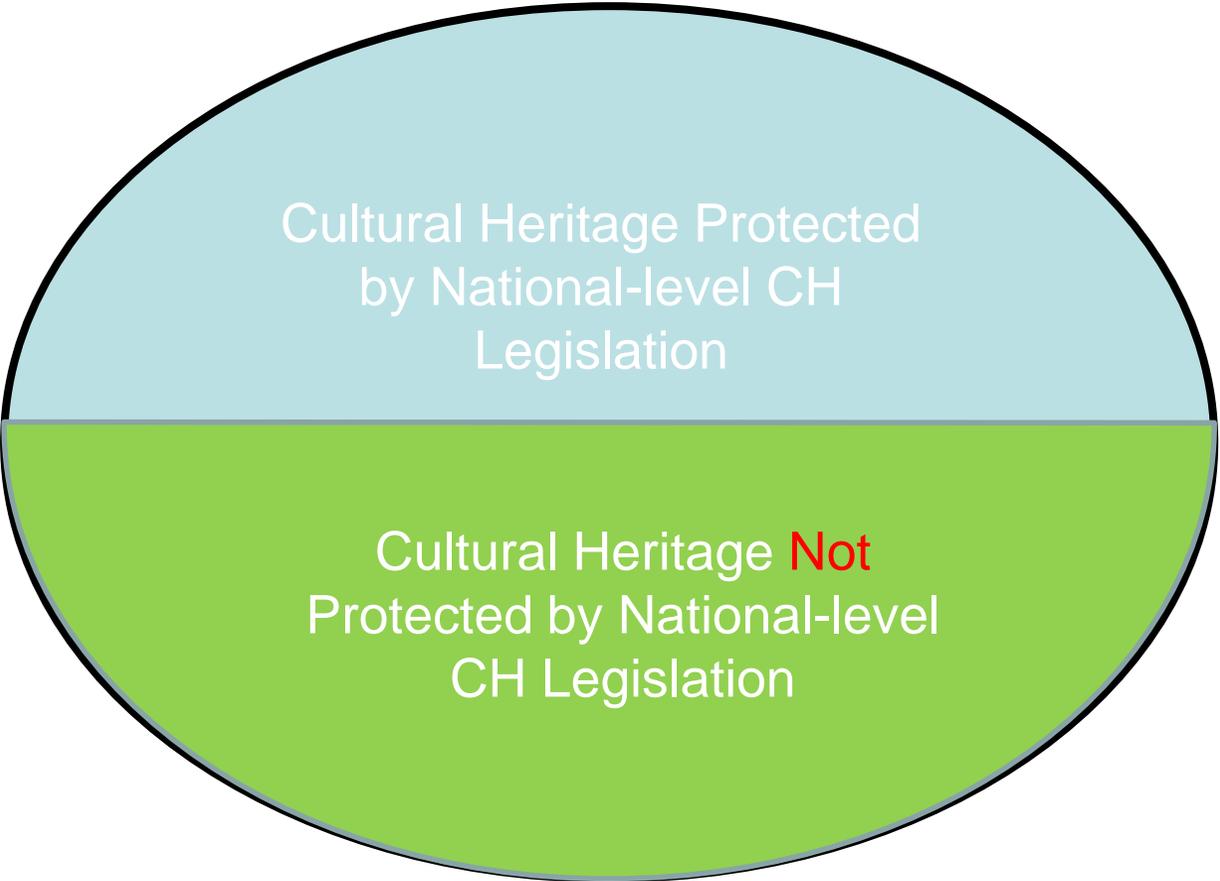


Defining Cultural Heritage Risk Vectors

Range of possible variables that should be considered in scaling risk

- National recognition – not all internationally-defined heritage is protected at the national level
- Sensitivity – the importance of a resource to one of more stakeholder groups and/or to regulatory bodies
- Visibility – the ability to see a heritage resource with minimal effort and to know it's a resource of concern
- Probability – the likelihood that a type of heritage resource can be found in a portion of an AOI
- Predictability – the likelihood that a specific type of heritage resource can be “predicted” within a discrete portion of the AOI

Context of National-level CH Legislation



Percentage of total recognizable heritage in the AOI that is protected by national-level legislation varies by country

Total Cultural Heritage in the Area of Impacts

National legislation

What might not be protected (vis-à-vis international standards)

- Intangible heritage
- Indigenous peoples' heritage
- Heritage of marginalized communities
- CH from the recent past
- Burials

Varies by country

Cultural Heritage Sensitivity



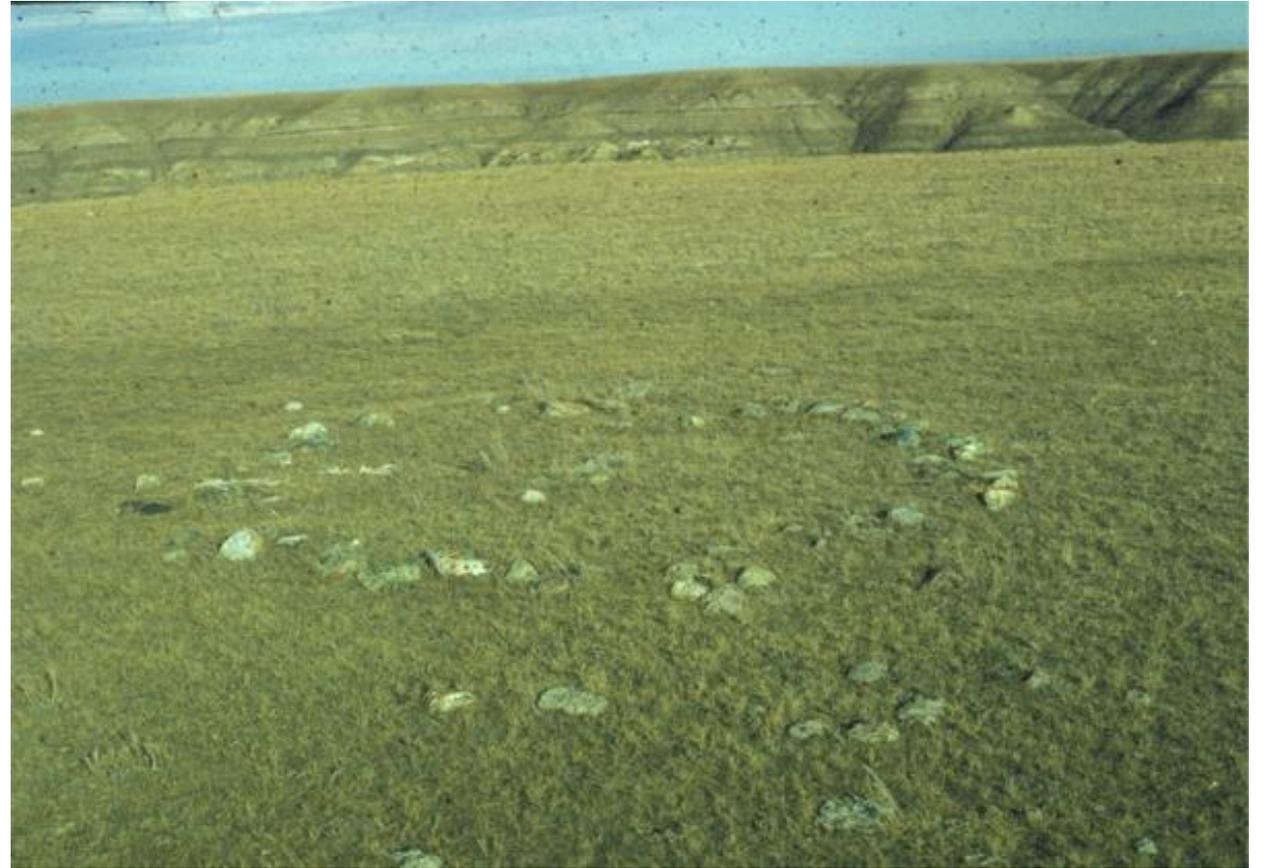
Cultural Heritage Sensitivity



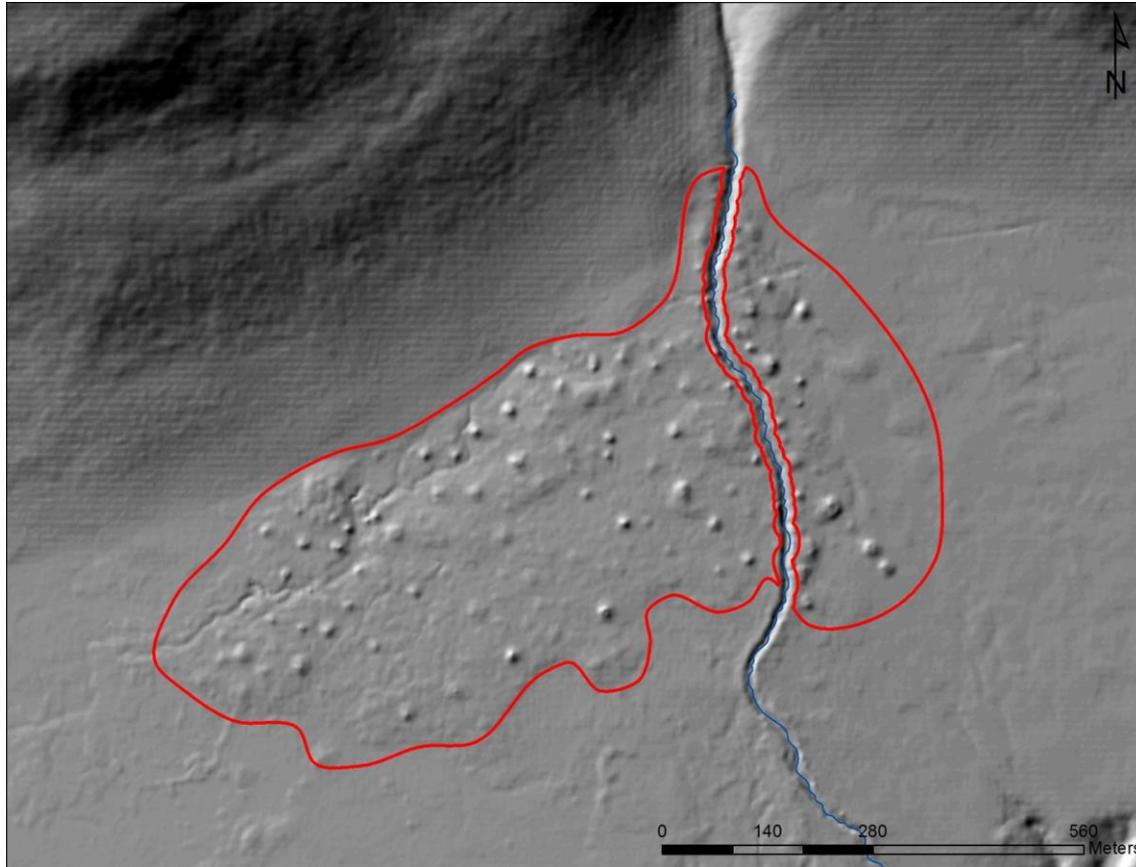
Cultural Heritage Visibility



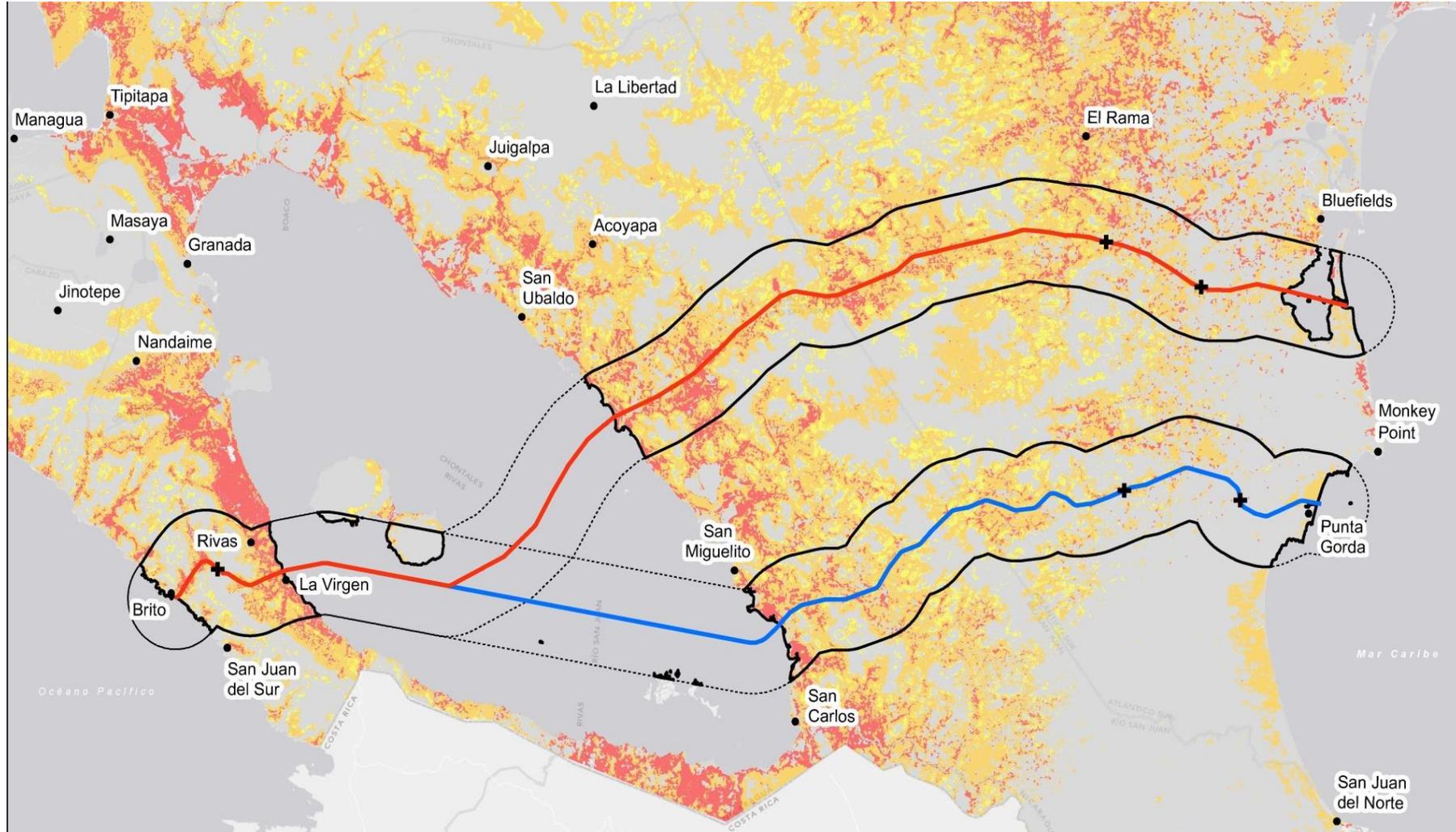
Cultural Heritage Visibility



Cultural Heritage Visibility



Cultural Heritage Probability



Cultural Heritage Predictability



Often directly correlated with visibility

Cultural Heritage Predictability



Cultural Heritage Predictability



Cultural Heritage Visibility and Sensitivity



Modeling Risk

- Algorithm-based approach
- Establish means for measuring across the selected variables:
Visibility

| | Estimated percentage of sites found using different survey techniques | | |
|----------------------------|---|-------------|-------------|
| | Site Type X | Site Type Y | Site Type Z |
| Intrusive survey (STPs) | 95 | 10 | 100 |
| Walkover survey | 75 | 5 | 100 |
| Satellite imagery analysis | 15 | 15 | 100 |
| Review of LiDAR Data | 5 | 15 | 100 |
| Geophysical survey | 60 | 75 | 100 |

Modeling Risk - Visibility Plus Survey Cost

| | Estimated percentage of sites found using different methods | | | Survey Costs (days/ha) |
|----------------------------|---|-------------|-------------|------------------------|
| | Site Type X | Site Type Y | Site Type Z | |
| Intrusive survey (STPs) | 95 | 10 | 100 | 2.5 |
| Walkover survey | 75 | 5 | 100 | 1 |
| Satellite imagery analysis | 15 | 15 | 100 | 0.05 |
| Review of LiDAR Data | 5 | 15 | 100 | 0.01 |
| Geophysical survey | 60 | 65 | 100 | 25 |

Modeling Risk

- Measuring across the selected variables: Sensitivity
- Scaled in different ways (scientific value, historical value, value to local communities/intangible value)
- Can use variety of scales: example = low, moderate, high, critical

| | Classification of Site Sensitivity | | |
|------------------|------------------------------------|-------------|-------------|
| | Site Type X | Site Type Y | Site Type Z |
| Scientific Value | Low | Moderate | Low |
| Historical Value | Low | Low | Low |
| Intangible Value | Moderate | Low | Low |
| Community Value | High | Low | Low |
| Final Value | High | Moderate | Low |

Modeling Risk - Variables Plus Cost

| EXAMPLE 1 (Site Type X) | Visibility | Survey Costs | Sensitivity | Probability | Chance Finds Cost (per instance) |
|----------------------------|------------|--------------|-------------|-------------|----------------------------------|
| Intrusive survey (STPs) | 95 | 2.5 | High | 80% | \$250K |
| Walkover survey | 75 | 1 | High | 80% | \$250K |
| Satellite imagery analysis | 15 | 0.05 | High | 80% | \$250K |
| Review of LiDAR Data | 5 | 0.01 | High | 80% | \$250K |
| Geophysical survey | 60 | 25 | High | 80% | \$250K |

| EXAMPLE 2 (Site Type Y) | Visibility | Survey Costs | Sensitivity | Probability | Chance Finds Cost (per instance) |
|----------------------------|------------|--------------|-------------|-------------|----------------------------------|
| Intrusive survey (STPs) | 10 | 2.5 | Moderate | 15% | \$50K |
| Walkover survey | 5 | 1 | Moderate | 15% | \$50K |
| Satellite imagery analysis | 15 | 0.05 | Moderate | 15% | \$50K |
| Review of LiDAR Data | 15 | 0.01 | Moderate | 15% | \$50K |
| Geophysical survey | 75 | 25 | Moderate | 15% | \$50K |

Thank You



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