

DRAFT CONSERVATION ACTION PLAN  
FOR PITI BOMB HOLES MARINE PRESERVE AND ADJACENT WATERSHED



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## VISION STATEMENT FOR PITI

### **Vision for Piti (from the perspective of the management community)**

**Piti will be the model of a community-based, management driven, environmentally friendly village with sustainable resources in harmony with the environment... and continuance of cultural traditions and the enjoyment of future generations...**

Results of brainstorming activity:

- No sediment
- Masso Reservoir project completed
- Community-enforced management plan
- Eco-friendly development
- Improved land management
- More environmentally oriented DLM
- Increase in native bird population and healthy forest
- Native freshwater species in Masso
- Refuge for migratory birds & moorhen
- Community values the environment (stewardship)
- Recycling program
- Political will
- Sustainable water
- Appropriate and maintained infrastructure
- Managed Scuba divers in the MPA
- No snakes!!!
- Ungulate control
- Badlands restoration
- Natural levels of sedimentation
- Sustainable economic activities for the community
- Nice park & community center
- Restore high fish levels

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## **1. Introduction**

### **1.1. A Context for Conservation**

Guam is the southernmost island in the Mariana Archipelago, located at 13°28' N, 144°45' E. It is the largest island in Micronesia with a landmass of 560 km<sup>2</sup>. Over the last 50 years Guam has experienced tremendous domestic growth and suffered significant environmental degradation island-wide. Guam's native flora and fauna have been impacted by various threats, such as the introduction of invasive species, poor land management practices, and overexploitation. The various resource agencies of the Government of Guam continue to address these issues, knowing that economic prosperity and preservation of the Chamorro culture are dependent on the successful recovery and sustainable use of the island's natural resources.

The island possesses a variety of terrestrial habitats, including limestone and ravine forests, savanna, and strand vegetation. One hundred named rivers are found in the southern part of the island, along with 2 man-made reservoirs. Marine habitats include fringing, patch, submerged and barrier reefs, offshore banks, seagrass beds, and mangroves. The Piti Bomb Holes Marine Preserve was one of five marine preserves established by Public Law 24-21 in order to restore dwindling inshore reef fish stocks. It was selected for the high degree of complexity reflected in its wide range of coral reef and sandy bottom habitat types. These complex habitats support one of the highest levels of diversity of fish, mollusks, echinoderms, crustaceans and other fauna on the island. Much of the shoreline is also fringed by sea grass beds which provide valuable refuge for juvenile fish. In addition, the estuaries of 3 rivers draining into the bay provide rich feeding and nursery grounds for many species. The preserve has an area of approximately 3.64 km<sup>2</sup>.

This project is part of an ongoing effort in the Piti Watershed to preserve and enhance water quality, native forest, coral reef ecosystems, and species of greatest conservation need.

### **1.2. Overview of this Report**

This draft conservation action plan (CAP) includes a list of conservation targets, a situation analysis, ranked threats, potential strategies for addressing these threats, and a capacity assessment developed by team members at workshops in January 2008, April 2008, and August 2009. It is intended to be a reference for the development of a management plan for Piti Bomb Holes Marine Preserve and the adjacent watershed. The report is organized around the steps of the Conservation Action Planning (CAP) Adaptive Management Cycle (Figure 1), which was also used to organize the workshop. Each step will be described briefly and the main products of that step will be discussed. Please refer to the excel workbook for details of the workshop's input.

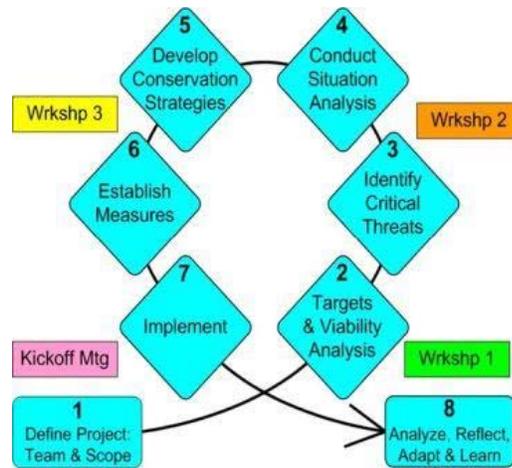


Figure 1. Conservation Action Planning (CAP) Adaptive Management Cycle, the project planning method used to organize the planning workshops and this report.

## 2. Conservation Planning and Adaptive Management

The CAP Adaptive Management Cycle is an iterative process which helps conservation projects develop and implement strategies, and then evaluate and learn from their experiences. The general steps of the process are to 1) define the project team and scope, 2) identify the conservation targets and assess their viability, 3) identify and assess the critical threats, 4) conduct a situation analysis, 5) develop conservation strategies, 6) establish measures, 7) implement the strategies and measures, and 8) analyze, reflect and learn from the results. The use of adaptive management means that the planning is never fully completed, but is continually refined, improved, and adapted over time. Future work will include a re-evaluation and refinement of the products to better reflect our growing knowledge and experience.

### 2.1. Identify Conservation Targets and Assess Viability

Conservation targets are species, communities, or ecological systems that represent the biological diversity of the project area and or what communities care about to conserve and protect. A good set of conservation targets should be designed to include those elements of the system that, if properly conserved, will result in the conservation of the full diversity of the landscape. Coarse-filter targets are intended to capture a large amount of smaller-scale biodiversity, both common and rare, within them, while fine-filter targets should include those small-scale elements that “fall through” the coarse filter and require individual attention.

In order to assess the targets’ viability, or ability to persist over the long term, the CAP process has developed a system to help teams define what they consider a “healthy” state for each target. The benefit of this exercise is in understanding the current status of the targets, as well as having a clearly defined desired status as a measurable objective toward which to work. The process for doing this involves identifying key ecological attributes (KEAs), indicators, ranges of variation, and rating schemes for each target. KEAs are characteristics of the target that are critical to its biology and that if altered would lead to the loss of the target. KEAs tend to fall into the broad categories of size, condition, and landscape context. Since KEAs are often not directly measurable, associated indicators (key characteristic of a target that can be measured) are selected in order to develop a rating scheme by which to evaluate the target status (Table 1).

Table 1. Viability assessment of conservation targets.

#	Conservation Target	Key Attribute	Indicator	Date	Current Indicator Measurement	Current Rating	Desired Rating
1	Coral Reef Ecosystem	Water chemistry	water quality	Jul-06		Fair	Good
		Water clarity	sediment load	Jul-06		Good	Very Good
		Water clarity	turbidity	Jul-06		Fair	Good
		community structure	percent live coral cover	Jul-06		Fair	Good
		Coral species composition / dominance	coral species diversity	Jul-06		Fair	Good
		Population structure & recruitment	population structure	Mar-08	varies within preserve area, but average of low to medium density with small to medium colonies (with a few rare large colonies)	Fair	Good
		Population structure & recruitment	recruitment	Jul-06	Poor	Fair	Good
		Size / extent of characteristic communities / ecosystems	areal extent of key habitat types	Mar-08	existing condition	Fair	Good
2	Native forest	Landscape pattern (mosaic) & structure	Veg Classification	Jul-06	Poor	Poor	Fair
		Soil / sediment stability & movement	% of leaf litter, % of organic material in soil	Jul-06	Poor	Poor	Fair
		Canopy cover	% canopy cover	Jul-06	Poor	Poor	Fair
		Species composition / dominance	species composition	Jul-06	Poor	Poor	Fair

#	Conservation Target	Key Attribute	Indicator	Date	Current Indicator Measurement	Current Rating	Desired Rating
		Size / extent of characteristic communities / ecosystems	ecosystem size	Jul-06	Poor	Poor	Fair
3	Fresh Water Ecosystem	Water chemistry	water quality	Mar-08	tbd based on assumptions of resource managers	Fair	Good
		Water clarity	turbidity	Mar-08		Fair	Good
		Species composition / dominance	number of native species	Mar-08	approx. 4-5 species piti-wide	Fair	Good
4	Native Terrestrial Wildlife	Population size & dynamics	species count	Mar-08	no rails released	Poor	Fair
5	Reef fish	Water chemistry	water quality	Jul-06		Fair	Good
		Population density	population density (by family and overall)	Mar-08	Fair	Fair	Good
		Population structure & recruitment	Density (by size class range)	Jul-06	Good	Good	Very Good
		spawning aggregating sites	number, size, and species compositions of SPAGS				
		Species composition / dominance	species composition	Jul-06	Fair	Fair	Good
		Presence of key communities or seral stages	undefined indicator	Jul-06	Fair	Fair	Good

A summary of the overall viability ranks for the five targets selected by Piti is found in Table 2.

Table 2. Summary of viability ranks for conservation targets.

Conservation Targets		Landscape Context	Condition	Size	Viability Rank
1	Coral Reef Ecosystem	Fair	Fair	Fair	Fair
2	Native forest	Poor	Poor	Poor	Poor
3	Fresh Water Ecosystem	Fair	Fair	-	Fair
4	Native Terrestrial Wildlife	-	-	Poor	Poor
5	Reef fish	Fair	Fair	Fair	Fair
<b>Project Biodiversity Health Rank</b>					<b>Fair</b>

Based on information provided by the Piti team and additional planning documents (FSM NBSAP, 2003; TNC, 2003), the overall ranking of the conservations targets is at fair. Upland forest was ranked as poor due primarily to invasive species, but also loss of coverage from clearing. Most of the targets were ranked as fair due to overharvest and habitat loss.

## 2.2. Situation Analysis

In order to document our understanding of the social and ecological context surrounding threats and targets, the team did a SWOT analysis to identify internal Strengths and Weaknesses and external Opportunities and Threats (Table 3) and a conceptual model showing the connections between the threats and the factors assumed to be driving them (Figure 2). The model is by necessity incomplete, and represents the working assumptions of the project team, as opposed to actual ecological relationships. It is intended to be a flexible tool that can be altered over time as our conception of the system develops.

Table 3. SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Stakeholders willing to participate</li> <li>• Well-studied area, lots of research, information</li> <li>• Existing management actions are working (e.g. MPA data showing improvements)</li> <li>• Environment starting to come back</li> <li>• Political will (Mayor wanting to do something)</li> <li>• Plans at Santos Memorial Park to alleviate some of the pressure of use of the Bomb Holes</li> <li>• Masso Reservoir Project</li> <li>• Diverse expertise in the group</li> <li>• People focused on Piti (Elaina – marine; Esther – watersheds)</li> <li>• Optimism (naiveté?)</li> <li>• High resilience of the resources (i.e. compared to the Caribbean)</li> <li>• High biodiversity (especially helps with</li> </ul>	<ul style="list-style-type: none"> <li>• Need clarity on enforcement for all violations (jurisdictions, who to call, procedures, 24 hour hotline, etc.)</li> <li>• No educational training for marine operators (e.g. tourist industry guides have to go through training on Guam history and then get certification)</li> <li>• Need new regulations for recreational operators (currently only need a business license)</li> <li>• Coastal erosion</li> <li>• Cutting of beach vegetation</li> <li>• Need more education for Mayor’s office staff</li> <li>• Need to bring other operators to the table</li> <li>• Small pool of people working on too many things island-wide (time and capacity issues)</li> <li>• Need more education on native plants</li> <li>• Need better regulations and enforcement for</li> </ul>

<p>preventing marine invasives)</p>	<p>burning permits</p> <ul style="list-style-type: none"> <li>• Some “cultural” practices aren’t eco-friendly</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Marine tour guide certification program through GCC</li> <li>• Proposed Guam Seashore Reserve Plan</li> <li>• Guam Eco-permit program</li> <li>• Educate Mayor’s staff</li> <li>• Outreach easier in Piti – discreet community</li> <li>• Family-by-family outreach</li> <li>• Brown tree snake brings attention to invasive species issues</li> <li>• UOG – can fill information gaps</li> <li>• Need to engage additional federal partners (NRCS, Refuge, etc.)</li> <li>• Engage Guam leaders</li> <li>• Students involvement (Jose Rios Middle School – science club, Chamorro club, etc.)</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• “Fly-by-night” operators</li> <li>• Fishermen illegally fishing in Piti MPA</li> <li>• No access for commercial operators to use the Port anymore (shift of use to Piti MPA)</li> <li>• More recreational users due to military build-up</li> <li>• Over-development in Nimitz Hill</li> <li>• Fire and badlands</li> <li>• Upland erosion issues</li> <li>• Climate change</li> <li>• Invasive species</li> </ul>

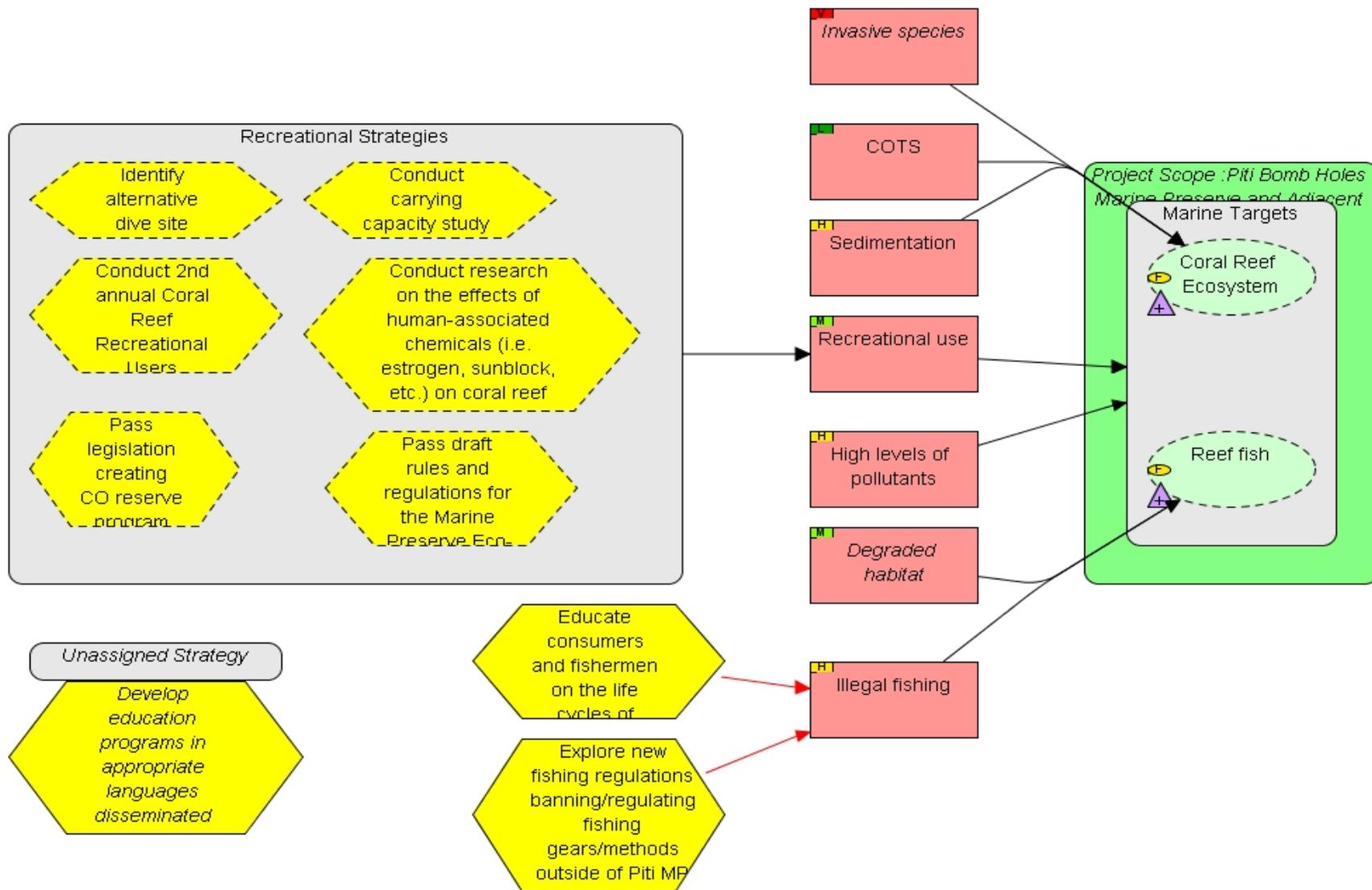


Figure 2. Conceptual Model for Marine Targets. Targets shown in green, direct threats shown in pink, and potential strategies shown in gold.

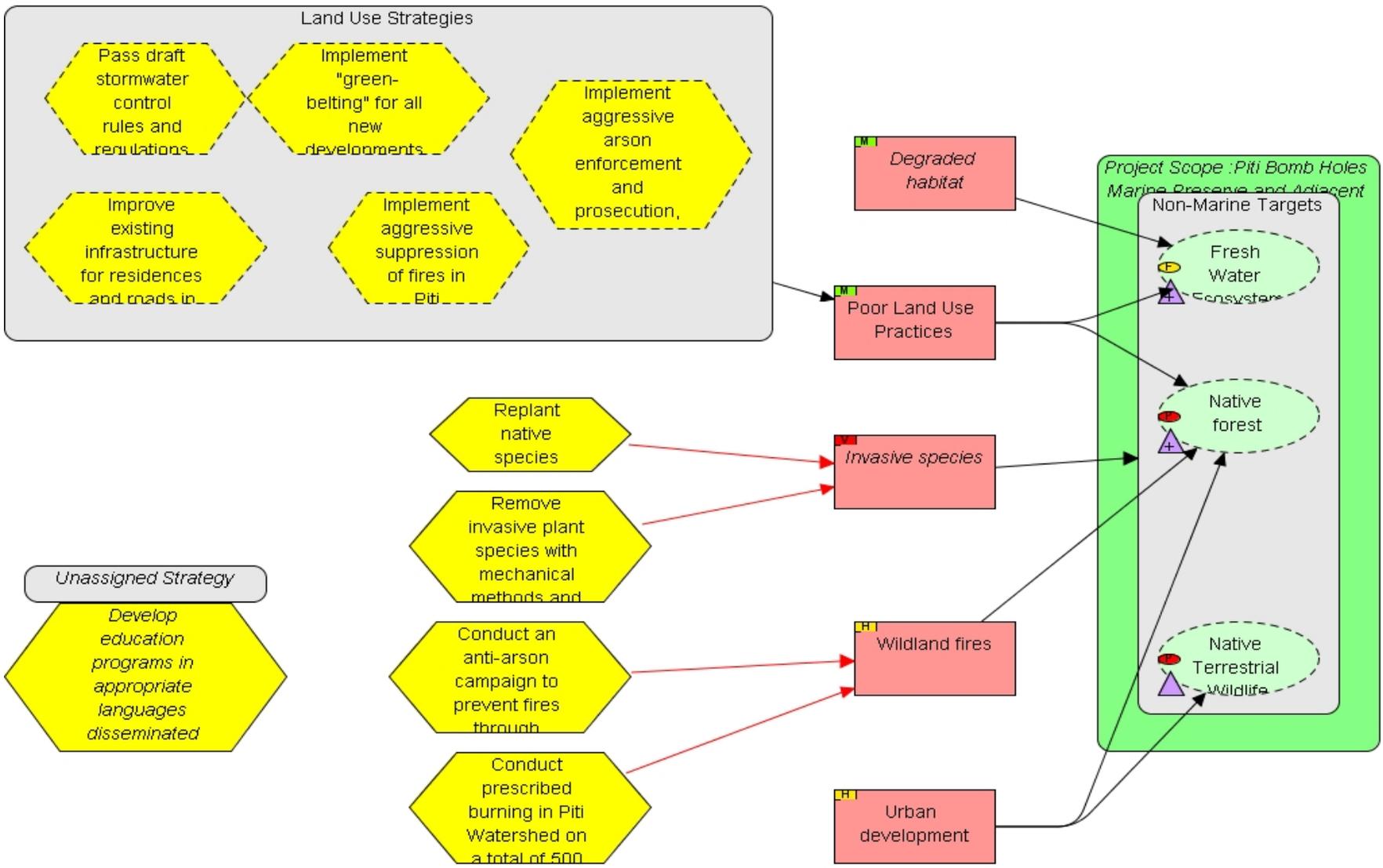


Figure 3 Conceptual Model for Non- Marine Targets. Targets shown in green, direct threats shown in pink, and potential strategies shown in gold.

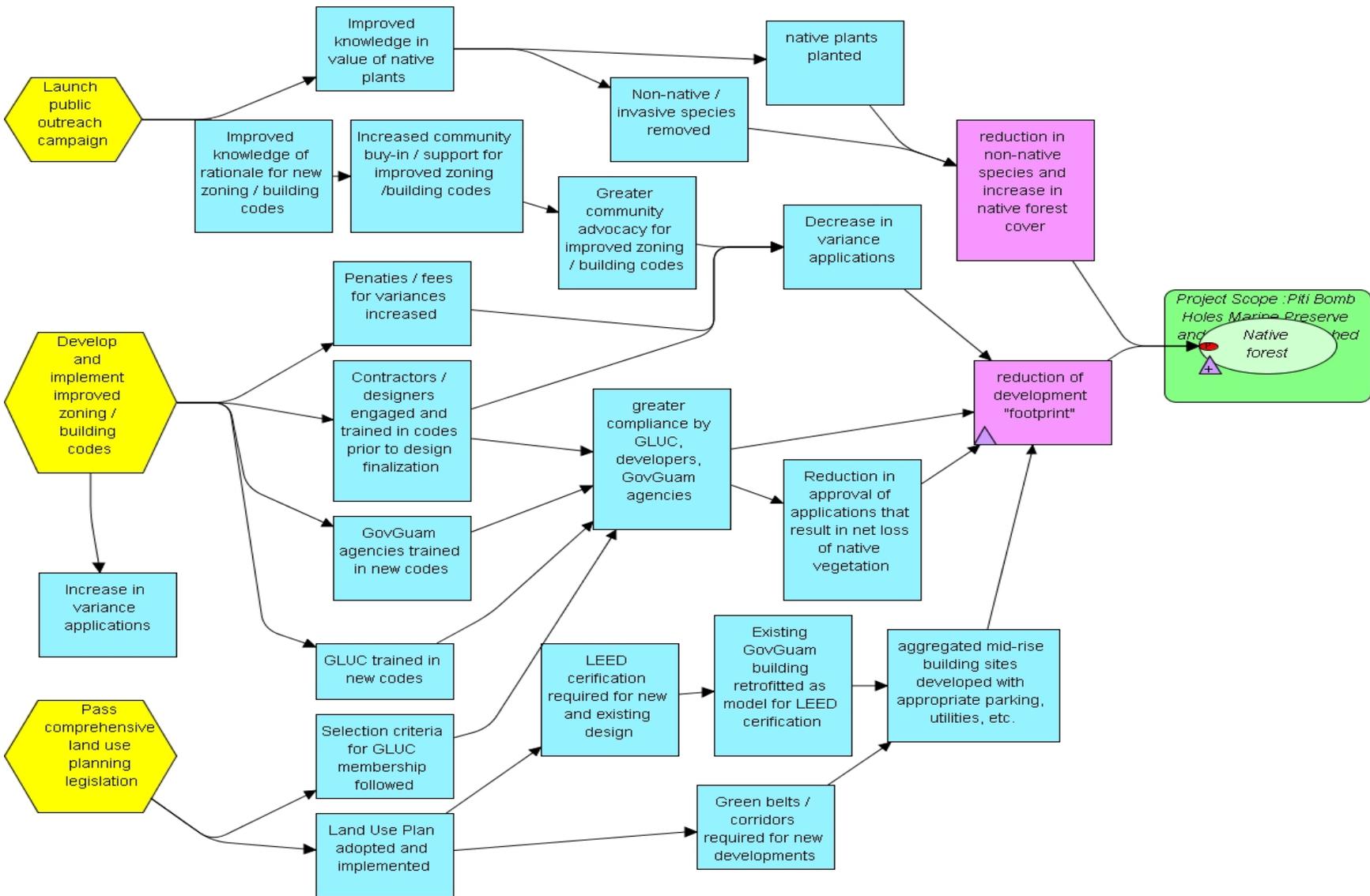


Figure 4. Draft results chain. Improving the health of native forest through three separate strategies.

### 2.3. Identify and Assess Critical Threats

Twenty-one stresses were identified as reducing the viability of the targets (Table 4). Stress is the impairment of key ecological attribute for a given target. The overall ranking of the threat is affected by the severity and scope of a given stress on the target. Scope is the extent of an area within the conservation target that could potentially be impacted within 10 years given current situations. Severity is the level of damage to the conservation target that can be reasonably expected within 10 years under current circumstances. The threats were also ranked according to two factors, contribution and irreversibility in order to gauge the degree of the threat. Contribution is the level at which the threat acting contribute to the source of stress on a given target. Irreversibility is the likelihood for the target to recover given certain threat to that target.

Table 4. Stresses affecting the viability of conservation targets.

Stresses Across Targets (Altered KEAs)		Coral Reef Ecosystem	Native forest	Fresh Water Ecosystem	Native Terrestrial Wildlife	Reef fish
		1	2	3	4	5
1	Altered species composition / dominance		Very High			Medium
2	Lack of recruitment				Very High	
3	Low or no population size				Very High	
4	Reduced area of native forest		Very High			
5	Altered landscape pattern (mosaic) & structure		High			
6	Change in size class structure	Medium				High
7	Change in species composition	High				
8	Change in trophic structure					High
9	Decrease in percent live coral cover	High				
10	Decrease in population density / biomass					High
11	Decreased canopy cover		High			
12	Decreasing areal extent of critical habitat types	High				
13	Loss of topsoil		High			
14	Low Recruitment	High		Medium		
15	Altered characteristics of SPAGS					Medium
17	Decreased food availability			Medium		
19	Decreased species diversity			Medium		
20	Poor water quality			Medium		

After the threats were ranked for each target, the CAP excel workbook consolidated threats that occurred for multiple targets and use an algorithm to roll the individual rankings up to an overall

rank for that threat. Table 5 summarizes the target ranks and overall rank for each of the ten threats identified. Based on this ranking system, invasive species were ranked very high and various forms of unsustainable land use practices and illegal fishing were ranked as high threats affecting the conservation targets most important to the community of Piti.

Table 5. Summary of rankings for threats to conservation targets.

Threats Across Targets		Coral Reef Ecosystem	Native forest	Fresh Water Ecosystem	Native Terrestrial Wildlife	Reef fish	Overall Threat Rank
Project-specific threats		1	2	3	4	5	
1	Invasive species	Medium	Very High	Low	Very High		Very High
2	Urban development		High		Very High		High
3	High levels of pollutants	Very High				Medium	High
4	Illegal fishing					Very High	High
5	Sedimentation	Very High					High
6	Wildland fires		Very High				High
7	Degraded habitat			Medium		High	Medium
8	Poor Land Use Practices		High	Medium			Medium
9	Recreational use	Medium				Medium	Medium
10	COTS	Medium					Low
Threat Status for Targets and Project		Very High	Very High	Medium	Very High	High	Very High

## 2.4. Conservation Strategies

Strategies consist of one or more measurable objectives, the associated strategic actions, and their action steps. Measurable objectives are detailed statements that describe the desired outcome of the strategy. Strategic actions are the general activities undertaken by the project team to achieve these objectives. Action steps are the specific tasks required to carry out each strategic action. Table 6 lists the strategies developed by the community members during the workshops.

Table 6. List of objectives and strategic actions.

#	Objectives, Strategic Actions and Action Steps
<b>Objective</b>	<b>Decrease the occurrence of all invasive plant species by 50% in Piti Watershed by 2018.</b>
Strategic action	Remove invasive plant species with mechanical methods and herbicides.
<b>Objective</b>	<b>Decrease the population of invasive animal species in Piti Watershed by 2018.</b>
<b>Objective</b>	<b>Implement a 2-year public outreach campaign to promote watershed stewardship among Piti residents (2010-2012)</b>
<b>Objective</b>	<b>Increase CPUE in adjacent, non-protected areas (e.g. Asan) by 25 percent by 2012</b>
<b>Objective</b>	<b>Increase density/ mean size/ species diversity of reef fish in Piti Marine Preserve by 25 percent by 2013</b>
Strategic action	Pass legislation creating CO reserve program within 6 months.
Strategic action	Develop education programs in appropriate languages disseminated through associations, schools, UOG, churches within 6 months.
Strategic action	Educate consumers and fishermen on the life cycles of important food fish within 6 months.
Strategic action	Explore new fishing regulations banning/regulating fishing gears/methods outside of Piti MP within 1 year.
<b>Objective</b>	<b>Increase in relative abundance of native species in the freshwater ecosystems of Piti Watershed by 2015.</b>
<b>Objective</b>	<b>Increase native canopy cover by 2018 [absolute and relative to existing]</b>
Strategic action	Implement aggressive arson enforcement and prosecution, including increased surveillance, in Piti Watershed by end of CY06.
Action step #1	Acquire the dedicated time of the natural resource prosecutor (3 months).
Action step #2	Acquire the dedicated time of the natural resource prosecutor (3 months).
Action step #3	Engage GPD to enforce natural resource laws, including arson.
Action step #4	Engage GPD to enforce natural resource laws, including arson.
Action step #5	Implement community "watch" program (lead: FSRD)
Action step #6	Implement community "watch" program (lead: FSRD)
Action step #7	Conduct 80 hr. USFS course in wildland arson investigation for 30 people (FSRD, GPD, GFD, DAWR, GEPA).
Action step #8	Conduct 80 hr. USFS course in wildland arson investigation for 30 people (FSRD, GPD, GFD, DAWR, GEPA).
Action step #9	Add 5 FTEs for 1 year to conduct surveillance (could be details).
Action step #10	Add 5 FTEs for 1 year to conduct surveillance (could be details).

#	Objectives, Strategic Actions and Action Steps
Strategic action	Implement aggressive suppression of fires in Piti Watershed by end of CY06.
Action step #1	Conduct active fire patrol in Piti (5 yrs., 2 engines, 6 additional FTEs – maybe volunteer fire department).
Action step #2	Conduct active fire patrol in Piti (5 yrs., 2 engines, 6 additional FTEs – maybe volunteer fire department).
Action step #3	Ensure earlier notification of fires through community “watch” program (establish within 3 months; lead: FSRD).
Action step #4	Ensure earlier notification of fires through community “watch” program (establish within 3 months; lead: FSRD).
Action step #5	Reinforce MOU with HC-5 for water drop within 3 months.
Action step #6	Reinforce MOU with HC-5 for water drop within 3 months.
Strategic action	Conduct prescribed burning in Piti Watershed on a total of 500 acres per year for 5 years.
Strategic action	Conduct an anti-arson campaign to prevent fires through education (by 9/30/06).
Strategic action	Replant native species over the next 10 years.
<b>Objective</b>	<b>Increase percent coral cover/ community structure (histogram viable population – coral recruitment)/ increase diversity (number of species) by 2018</b>
<b>Objective</b>	<b>Positive change in the coverage/occurrence/abundance of indicator species (TBD, eg. soft corals) in coral reef habitat in Piti Bomb Holes Marine Preserve by 2015.</b>
Strategic action	Pass draft stormwater control rules and regulations users manual within 6 months.
Action step #1	Conduct public hearing as part of Triple A process.
Action step #2	Conduct public hearing as part of Triple A process.
Action step #3	Combine the above workshop with a workshop on Guidelines for Development and tie both to some sort of certification to ensure better turnout(100-150 people, \$5K from GCMP)
Action step #4	Combine the above workshop with a workshop on Guidelines for Development and tie both to some sort of certification to ensure better turnout(100-150 people, \$5K from GCMP)
Action step #5	Conduct workshop on rules and regulations and users manual for Guam Contractor’s Association, Chamber of Commerce, GHRA, PEALS by 9/30/06 (lead: Adrienne Loerzel).
Action step #6	Conduct workshop on rules and regulations and users manual for Guam Contractor’s Association, Chamber of Commerce, GHRA, PEALS by 9/30/06 (lead: Adrienne Loerzel).
Action step #7	Engage Mayor’s office to notify GEPA/DPW about violations/educate staff.
Action step #8	Engage Mayor’s office to notify GEPA/DPW about violations/educate staff.
Action step #9	Incorporate implementation of “green infrastructure” into above workshops (lead: David Limtiaco)
Action step #10	Incorporate implementation of “green infrastructure” into above workshops (lead: David Limtiaco)
Action step #11	Train inspectors on new rules and regulations.
Action step #12	Train inspectors on new rules and regulations.
Strategic action	Improve existing infrastructure for residences and roads in Piti village by 2008.
Action step #1	Explore a formal mechanism (i.e. USCRTF resolution, letter from Governor, etc.) for engaging Department of Transportation on tying Highway funds to compliance with regs. (leads: Vangie Lujan, Adrienne Loerzel, Trina Leberer).
Action step #2	Explore a formal mechanism (i.e. USCRTF resolution, letter from Governor, etc.) for engaging Department of Transportation on tying Highway funds to compliance with regs. (leads: Vangie Lujan, Adrienne Loerzel, Trina Leberer).
Action step #3	For residences, install “rain garden” at Piti Mayor’s Office as pilot/demonstration site and engage KUAM, other media to do feature (lead: David Limtiaco).
Action step #4	For residences, install “rain garden” at Piti Mayor’s Office as pilot/demonstration site and engage KUAM, other media to do feature (lead: David Limtiaco).

#	Objectives, Strategic Actions and Action Steps
Action step #5	Train DPW staff (building permit staff, inspectors, engineers) in stormwater control and inspection (lead: GCMP, \$15K).
Action step #6	Train DPW staff (building permit staff, inspectors, engineers) in stormwater control and inspection (lead: GCMP, \$15K).
Strategic action	Implement "green-belting" for all new developments in Piti Watershed within 6 months.
<b>Objective</b>	<b>Reduce number of negative impacts of recreational users (coral breakage, kicking up sediment, and trampling sea grass) on coral reef habitat and seagrass in Piti Bomb Holes Marine Preserve by 25% by 2015.</b>
Strategic action	Conduct carrying capacity study in Piti MP by 9/30.
Strategic action	Conduct 2nd annual Coral Reef Recreational Users Workshop for 300 people by end of CY 06.
Strategic action	Conduct research on the effects of human-associated chemicals (i.e. estrogen, sunblock, etc.) on coral reef ecosystem in Piti Bomb Holes MP by 2008.
Strategic action	Pass draft rules and regulations for the Marine Preserve Eco-permit Program within 6 months.
Action step #1	Reprioritize workload of natural resource prosecutor (lead: Vangie Lujan)
Action step #2	Reprioritize workload of natural resource prosecutor (lead: Vangie Lujan)
Action step #3	Conduct public awareness campaign (\$10K from GCMP)
Action step #4	Conduct public awareness campaign (\$10K from GCMP)
Action step #5	Conduct public hearing as part of Triple A process (lead: Jay Gutierrez)
Action step #6	Conduct public hearing as part of Triple A process (lead: Jay Gutierrez)
Action step #7	Train enforcement officers on rules and regulations (DAWR in-house)
Action step #8	Train enforcement officers on rules and regulations (DAWR in-house)
Strategic action	Required video/ training program and proof of certification
Strategic action	Increased coordination with Department of Revenue and Taxation
Strategic action	Control of fly-by-nighters dive operators
Strategic action	Intern/ volunteer monitors and educators
Strategic action	Relaunch Kika video campaign
<b>Objective</b>	<b>Reduce turbidity by x percent by 20xx</b>

### 3. Capacity Assessment

An analysis of the local capacity of agency staff was conducted during the workshop and facilitated by the facilitators. The following table describes the results of this analysis. The overall project resource rank was determined as "medium".

**Table 7: Local Capacity Assessment**

Project Resource Measures	Score
<b>People</b>	
Staff Leadership	Medium
Multidisciplinary Team	Medium
<b>People Average</b>	Medium
<b>Internal Resources</b>	
Institutional Leadership	Medium
Funding	High
<b>Internal Resources Average</b>	Medium
<b>External Resources</b>	
Social/Legal Framework for Conservation	Medium
Community and Constituency Support	High
<b>External Resources Average</b>	Medium
<b>Overall Project Resource Rank</b>	<b>Medium</b>

The chart displays the following scores for each measure:

- Staff Leadership: Medium (Yellow)
- Multidisciplinary Team: Medium (Yellow)
- Institutional Leadership: Medium (Yellow)
- Funding: High (Green)
- Social/Legal Framework for Conservation: Medium (Yellow)
- Community and Constituency Support: High (Green)
- Overall Project Resource Rank: Medium (Yellow)

Legend: ■ Very High (Dark Green), ■ High (Green), ■ Medium (Yellow), ■ Low (Red)

#### **4. Conclusion**

This report documents the results and products of conservation planning workshops held in in January 2008, April 2008, and August 2009. It is intended to be used by the Piti community as a reference for the development of a management plan.

#### **5. List of References**

Conservation Action Planning Excel Toolkit Version 6.0