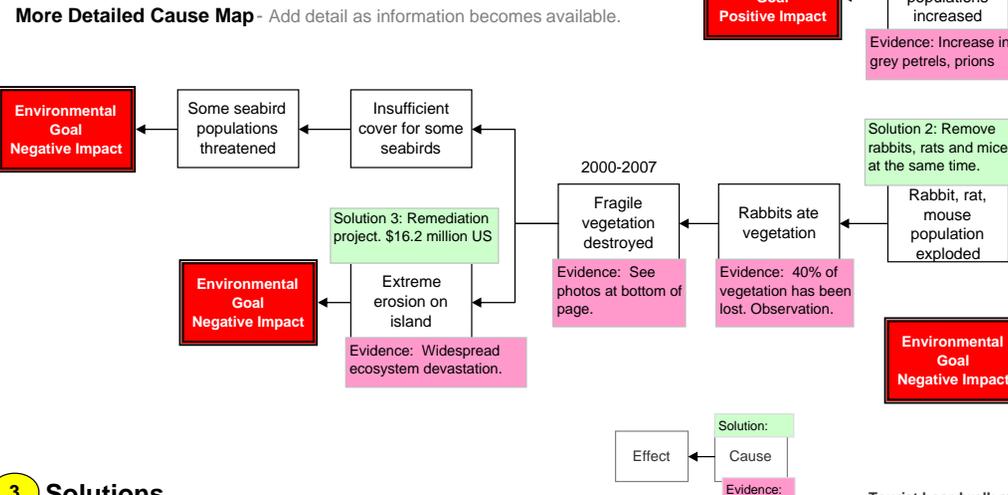
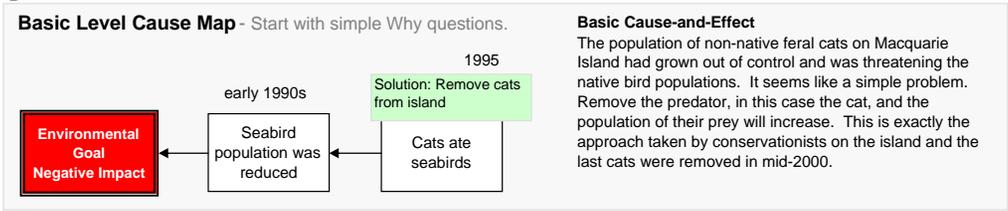


1 Problem

What	Problem(s)	Birds endangered, Loss of vegetation on island
When	Date	January 2008
	Differences	Non-native species previously introduced to island
Where	Physical Location	Macquarie Island, South Pacific
	Work Being Done	Conservation program for island
Impact to the Goals		
	Safety	None
	Environmental	Severe negative impact to island ecosystem
	Material, Labor Cost	Remediation required \$16,200,000 US

2 Analysis



3 Solutions

No.	Cause	Action Item	Owner	Due Date	Status
1	Cats ate seabirds	Remove cats from island	Parks & Wildlife Service	Started 1995	Completed 2000
2	Rabbit, rat, mouse populations exploded	Remove rabbits, rats and mice at the same time.	Parks & Wildlife Service	To start 2010	
3	Extreme erosion on island	Remediation project. \$16.2 million US	Parks & Wildlife Service	To start 2011	

MACQUARIE ISLAND

Cause Map

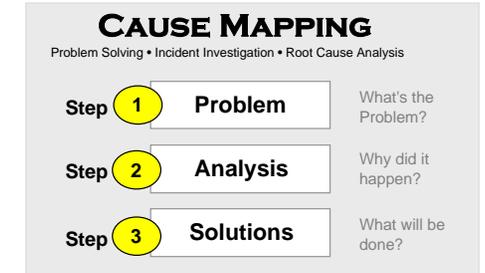
Cats & Rabbits

An Example of Unintended Consequences

Applying a solution to solve one *problem* can inadvertently create an even bigger problem. This is called *unintended consequences*. A thorough root cause analysis can help prevent this scenario by creating a map of all the causes.

"It seemed like a good idea."

Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.



More Detailed Cause-and-Effect

Recently, scientists at the Australian Antarctic Division discovered that removing the cats has resulted in widespread environmental devastation because it allowed the rabbit and rat populations on the island to explode. The ever increasing number of rabbits had eaten significant amounts of the vegetation on the island, leading to major erosion issues. The increase in the number of rats is a threat to the bird population because they feed on young chicks. Obviously, the cats weren't the only cause that needed to be addressed if the island and its inhabitants were to be preserved.

The rapid increase in rodents was possible because rabbits and rats had no natural predators since they are also non-native to the island. Rats were inadvertently introduced to the island by ships. The cats were purposely brought to the island to help control the rodent population and protect the human food stores. Rabbits were also deliberately introduced to the island to serve as a food for sailors.

The analysis to the problem needed to be more thorough than identifying a single cause - the cats. To restore the island and its native inhabitants to their natural state, all non-native species need to be removed at the same time.

NOTE: The solution, *Remove cats from island*, controls the cause *Cats ate seabirds*. It is also a cause of significantly fewer predators, which produces other effects.



Tourist boardwalk at Sandy Bay, north end of Macquarie Island
Photos from Tasmania National Parks Association web site



For a free copy of our Root Cause Analysis Template in Microsoft Excel, used to create this page, visit our web site.

ThinkReliability
Investigate Problems. Prevent Problems.
Houston, Texas 281-412-7766 ThinkReliability.com