

Happy Village

Group A

You work for a conservation organization and your goal is to save the critically endangered yellow-nose monkey which lives in the protected area outside the village. The people of Happy Village revere this species as they believe that their ancestors are reborn as yellow-nosed monkeys and live close by to protect the village. The population of yellow-nosed monkeys within the park is generally healthy. The yellow-nose monkey requires heavy forest cover and is rarely seen outside the park. Scientists have observed that during the past several years many monkeys have died during the severe heat waves that region has experienced. Also, there is evidence that with warmer temperatures a beetle that had never been seen before in this region, has infested the protected area and is killing trees that provide the main source of food for the yellow-nose monkey. To survive, the monkeys will need to migrate to higher elevations where temperatures are cooler and the beetle is not yet found.

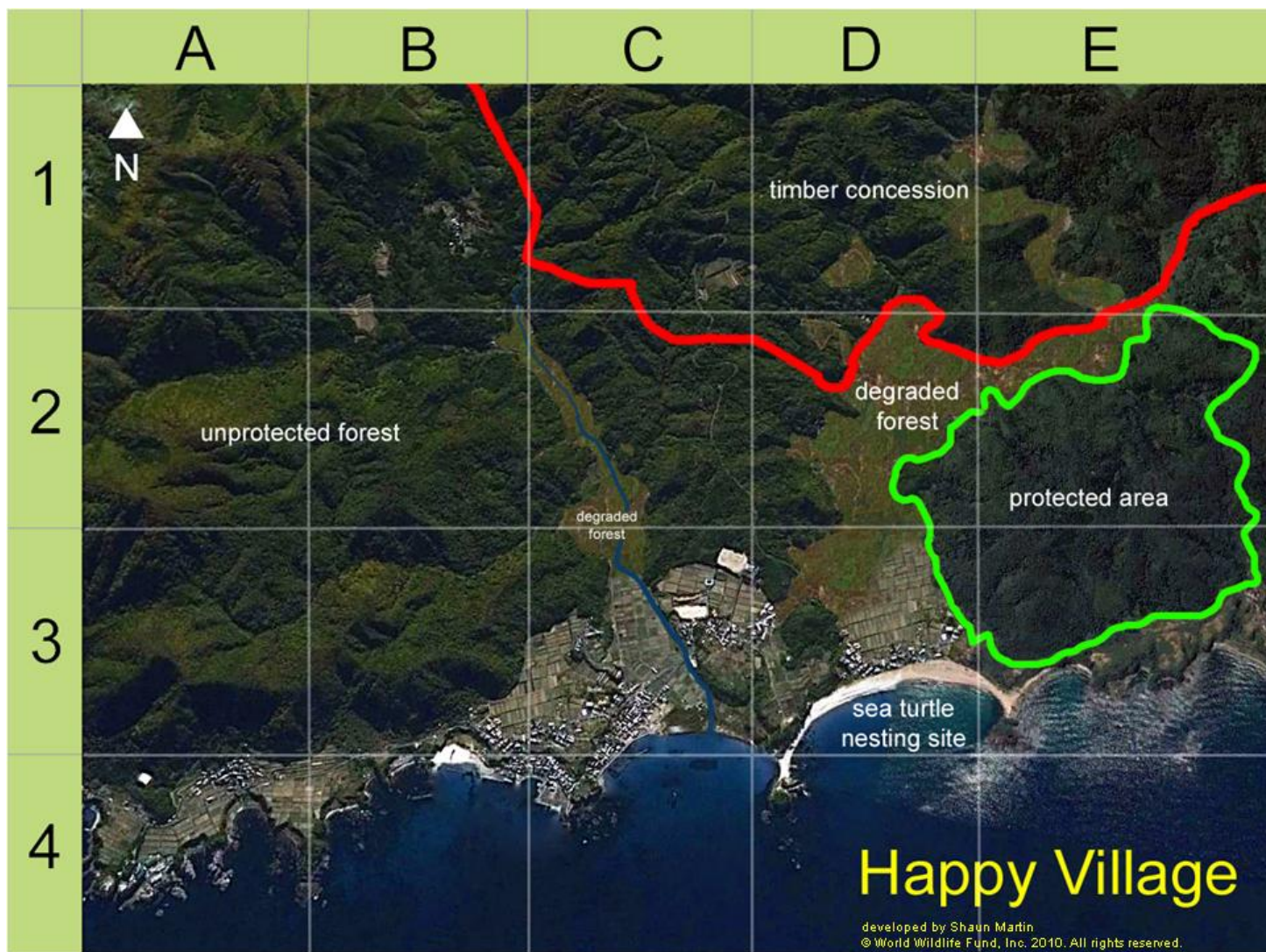
Exercise

- Discuss each adaptation option below. Determine which options you would choose to pursue. Be sure to record the reasons why you choose these options on the reverse side of this paper since you will need this for the next part of the exercise.
- You may select as many options as you want so long as you believe they are good ideas (ie they are feasible, are not mutually exclusive, will not create other problems, etc.)
- You must come to consensus in your group on which options to select.
- You may not create new options.
- You have about 15 minutes to finish this task.

Options to consider

- Build corridors connecting the protected area with the unprotected mountainous forest (A1-3, B1-3) and protect the forest for the future.
- Introduce a non-native bird species that feeds on the beetles that have infested the protected area.
- Establish a captive breeding program and begin to introduce the yellow-nose monkeys into zoos.





Selected option	Areas on the map where you will locate your activities for this option	Reasons why you selected this option.

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Group B

You work for a marine conservation organization and your goal is to protect the sea turtle nesting site in this village (D3). As fisheries have declined, many residents have turned to poaching sea turtle eggs for protein. In addition, recent heat waves have resulted in high mortality of turtle hatchlings as the beach sand becomes much too hot. The beach used to be lined with trees, but most have been removed and replaced by houses. The only stand of trees that remains is on the far west side of the beach. Most of these houses are threatened by storm surges and sea level rise. In fact several homes along the beach were destroyed in the last big storm. In addition, as sea level rises, coastal development will be a barrier for turtles seeking to nest as the beach moves further inland.

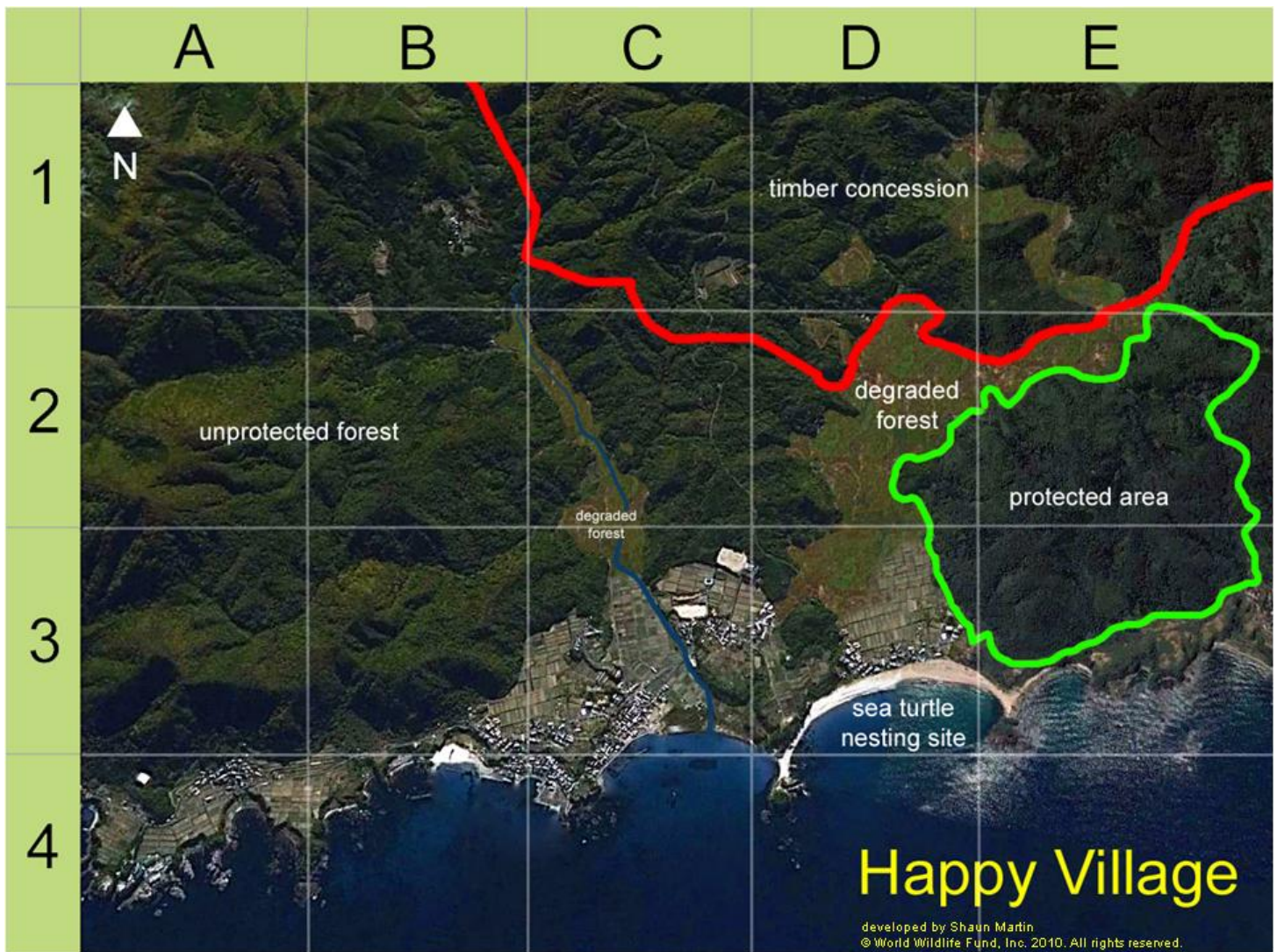
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Options to consider

- Persuade the villagers to restore the trees along the beach to provide shade and cooler temperatures for turtle eggs and hatchlings.
- Encourage poultry farming to provide an additional source of protein for the villagers.
- Persuade the villagers to relocate their homes further inland to protect them from sea level rise and reduce barriers for sea turtles in the future.





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Group C

You are members of the village farmers association and you are concerned about declining agricultural yields. Although farmers have benefitted somewhat by a longer growing season due to warmer temperatures, vegetable fields by the river (C3) have experienced severe flooding in the past several years brought on by intense storms. One reason may be the loss of forest cover along the river. The land surrounding the river is community land and has been used as a source of firewood for many generations. In addition, salt water has begun to intrude fields on the other side of the village behind the beach (D3). Your association must find solutions to maintain the villagers' livelihoods.

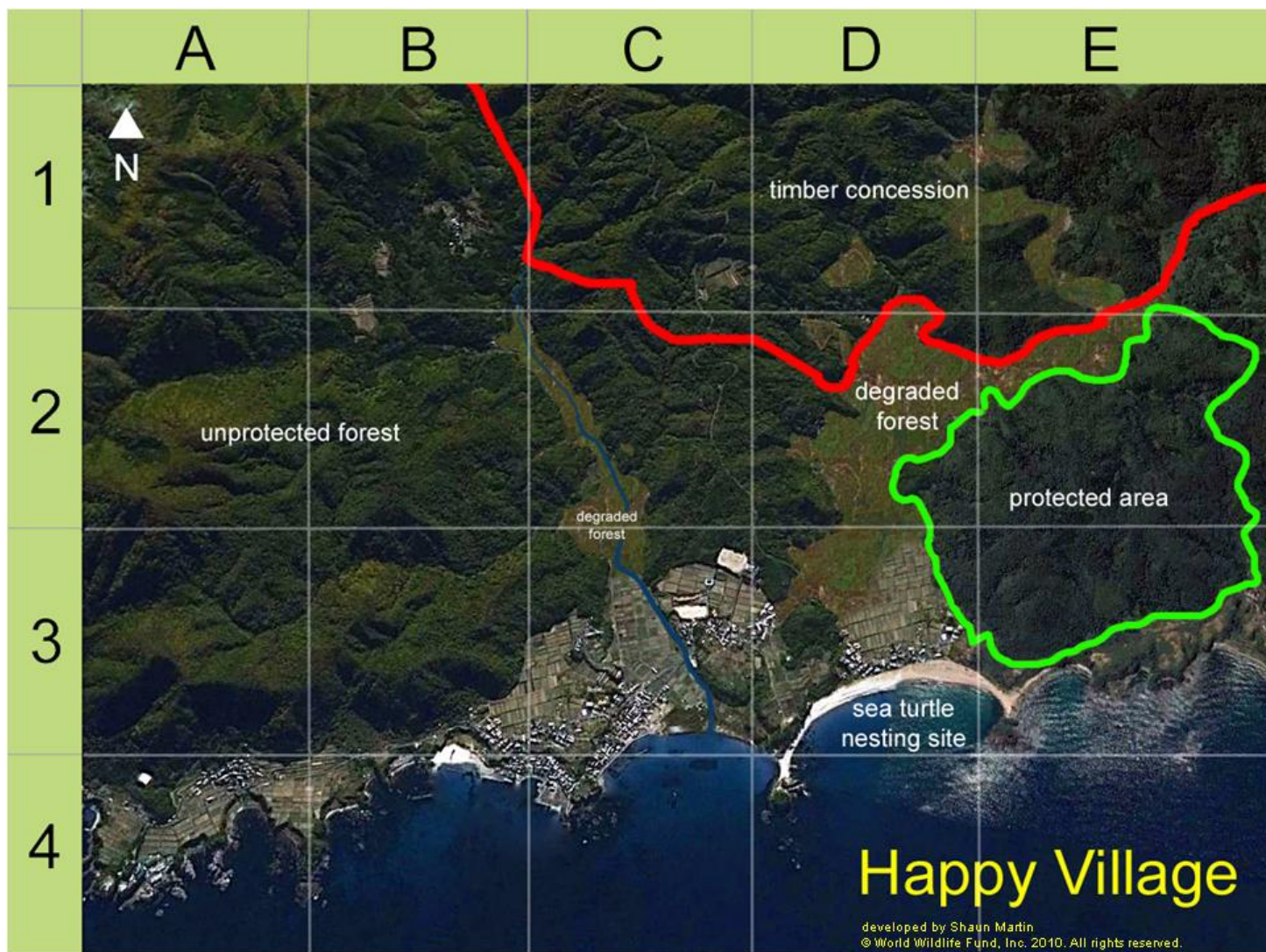
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Options to consider

- Introduce genetically modified crops that can withstand floods and have a high tolerance for salt.
- Relocate the vegetable fields to degraded forest land (C2, D2, D3).
- Restore degraded forest (C2) to reduce flooding.
- Begin to cultivate coffee as a cash crop in the unprotected forested mountains (A1-3, B1-3).





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Group D

You are members of the village council and you are concerned about property damage and loss due to recent storms and coastal erosion. In recent years, several families along the beach have lost their homes due to storm surges (D3). In the western part of the village, vegetable fields have fallen into the sea (A4, B4). There is very little flat land suitable for housing in this region. The hills that surround the village are very steep and clearing the forests for housing would result in landslides. You must decide how to best protect the villagers' homes.

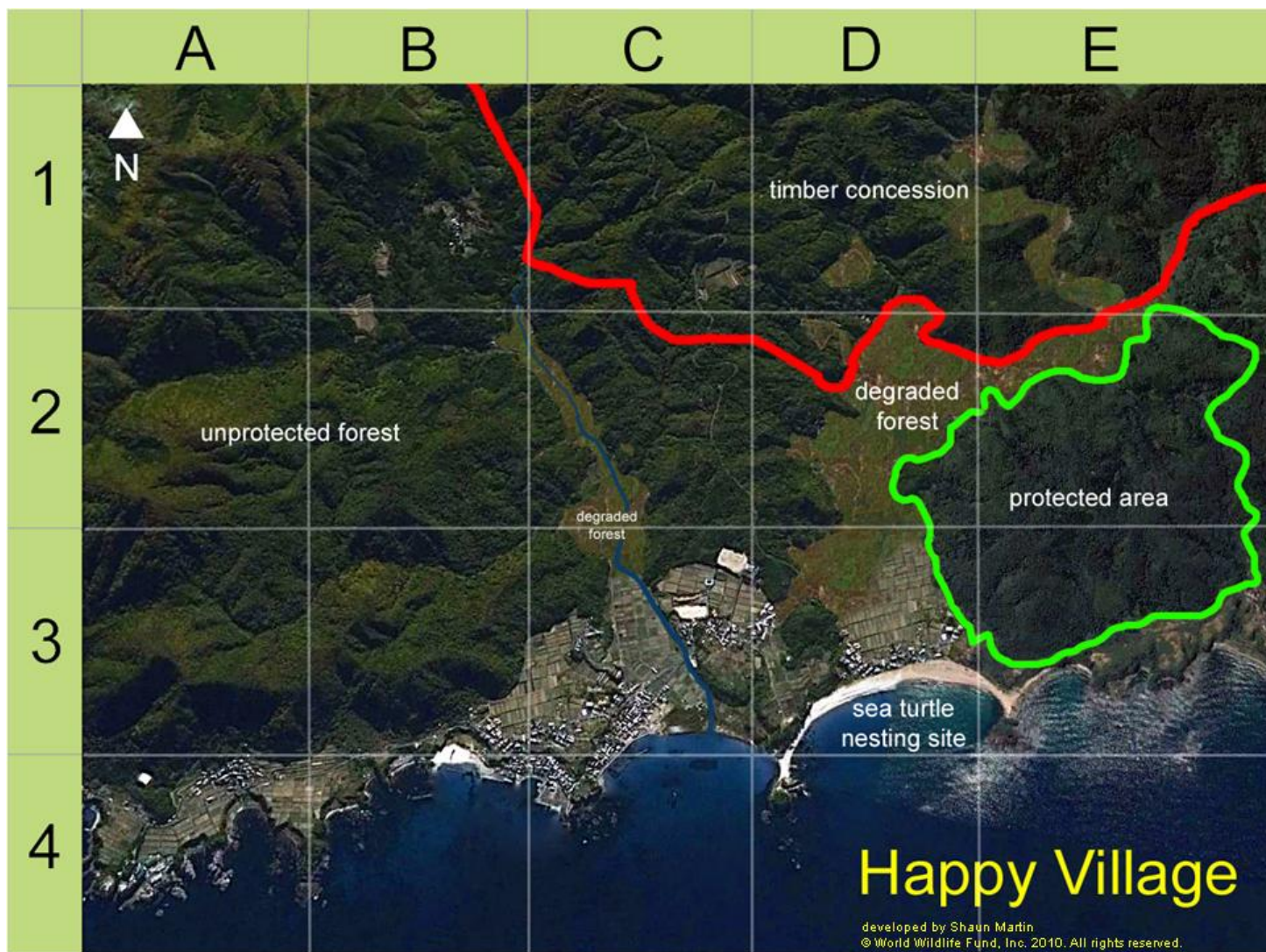
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Options to consider

- Build a sea wall across the entire coastline to protect it from storm surges (A4-E4).
- Relocate homes into degraded forest land (C2, D2).
- Plant mangroves in the along the section of coast that can support them (C3, C4 only).





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Group E

You work for an economic development organization and the government has given you a subsidy to develop ecotourism in the village where jobs other than farming are very scarce. The region is filled with natural assets that have the potential attract many tourists – the protected area, which is home to the charismatic and endangered yellow-nose monkey; the beach, which every April sees the return of sea turtles to lay eggs; and the forested mountains to the northwest of the city, which are largely undeveloped but could attract hikers and birders if nature trails are installed. You plan to build a hotel in the village, but are concerned about potential long-term risks associated with climate change. The beach is subject to sea level rise and you heard that agricultural land in some parts of the village is prone to severe flooding. Degraded forest land is too far from the beach, but could provide easy access to the protected and unprotected forests.

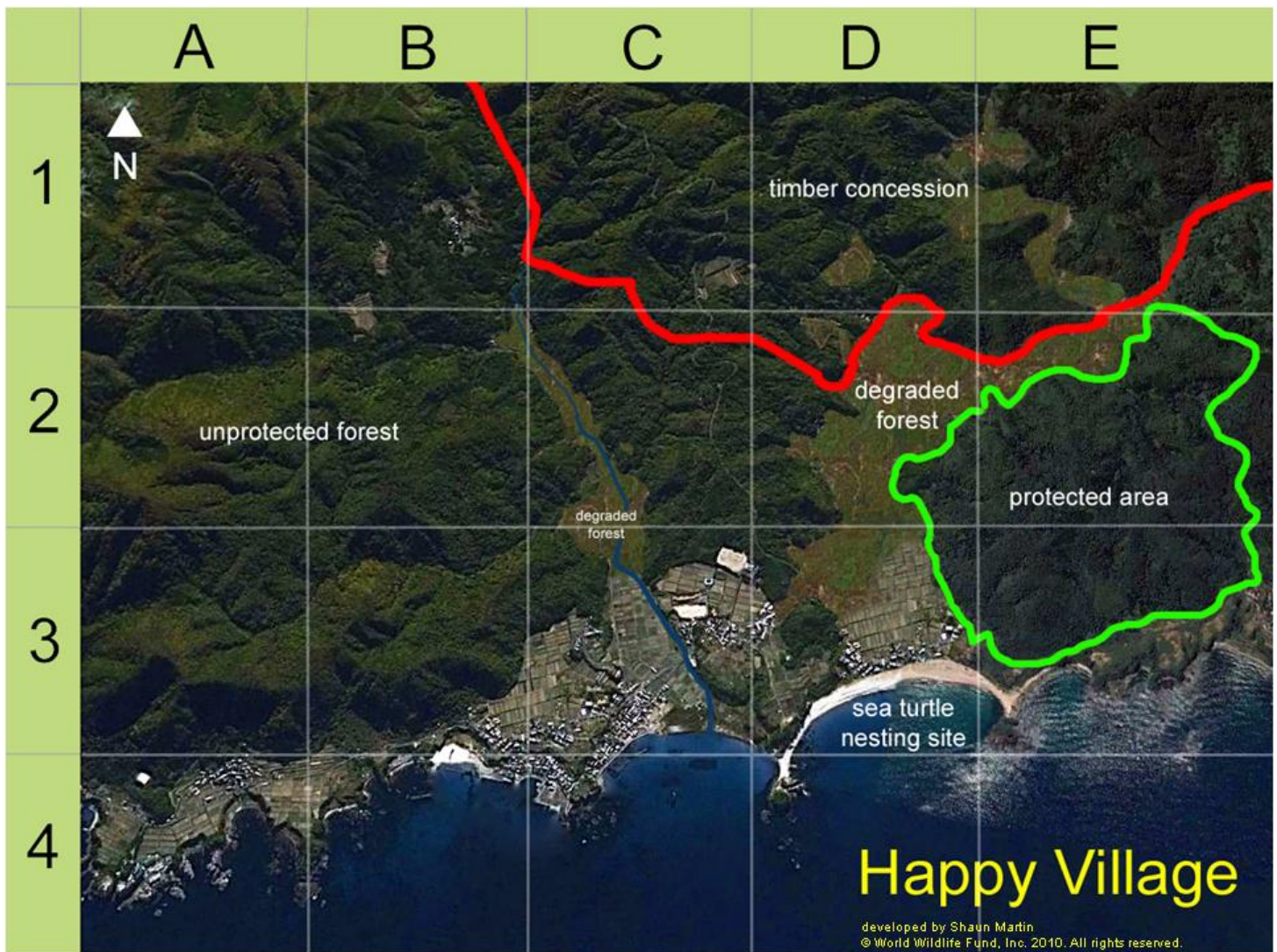
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Options to consider

- Build the hotel along the undeveloped western side of the beach (D3) and protect it with a sea wall.
- Build the hotel along the beach where houses and fields currently stand (D3), but far enough away from the sea to protect it from storm surges and sea level rise.
- Build the hotel on current agricultural land (C3) while protecting it by reforesting degraded areas to protect it from floods (C2).
- Build the hotel and hiking trails in the unprotected forests (A1-3, B1-3).





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Group F

You work for a logging company that is known for its good environmental practices. In fact, your company has been sustainably harvesting timber for the past 25 years and has won awards from leading conservation organizations. Logging is one of the few sources of employment in the village other than farming. In the past several years, with warmer weather a beetle that has never been seen in the region before has infested the concession your company owns (C1, D1, E1) and is killing value timber species. Your profits are declining and you have had to lay off many workers. You are concerned that with the loss of income, villagers will begin to illegally log the unprotected forests (A1-3, B1-3), which have not yet been infested by the beetle because of the higher elevations and cooler temperatures.

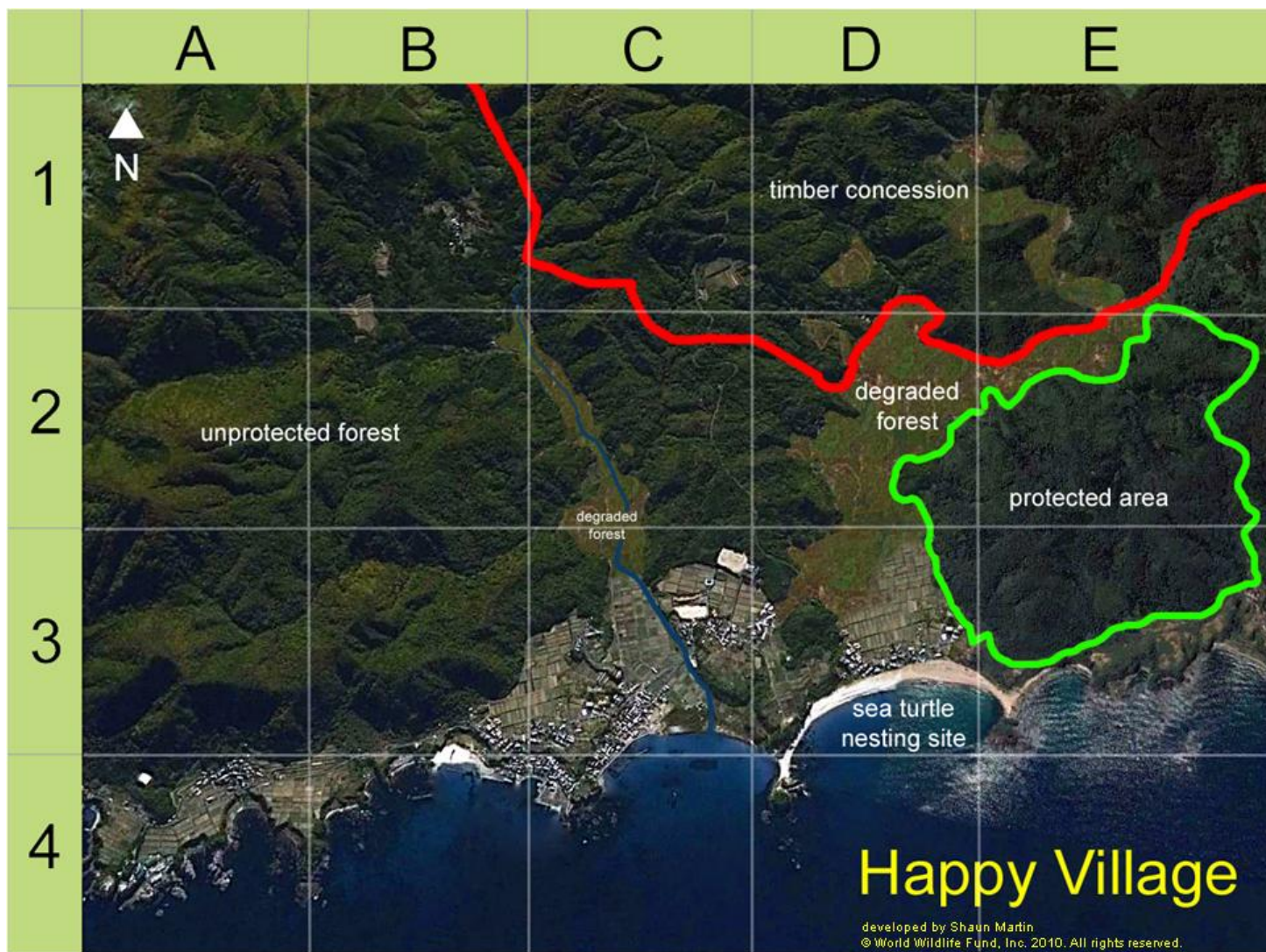
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Options to consider

- Persuade the government to sell your company logging rights to the unprotected forests so you can expand your operations, increase profit, and ensure that the forests are well-managed.
- Introduce a non-native bird species that feeds on the beetles that have infested the timber concession.
- Diversify your company's income by employing former loggers to grow shade-grown coffee in the timber concession.





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Group G

You are members of the loggers union and have recently lost your jobs working in the timber concession outside of the village. You have noticed that the most valuable tree species that you used to cut is rapidly dying and you suspect it may be due to the recent strange warm weather. Trees in the cool, forested mountain areas are thriving. Other than farming, there are few employment opportunities in the village and land for agriculture is scarce and expensive and the fisheries in the village have been unproductive for many years. In addition to losing your jobs, several of you who live along the beach (D3) have recently lost your homes due to severe storms and you are now living with relatives. You must decide how you will provide income for your families until logging jobs in the concession return (if they ever return).

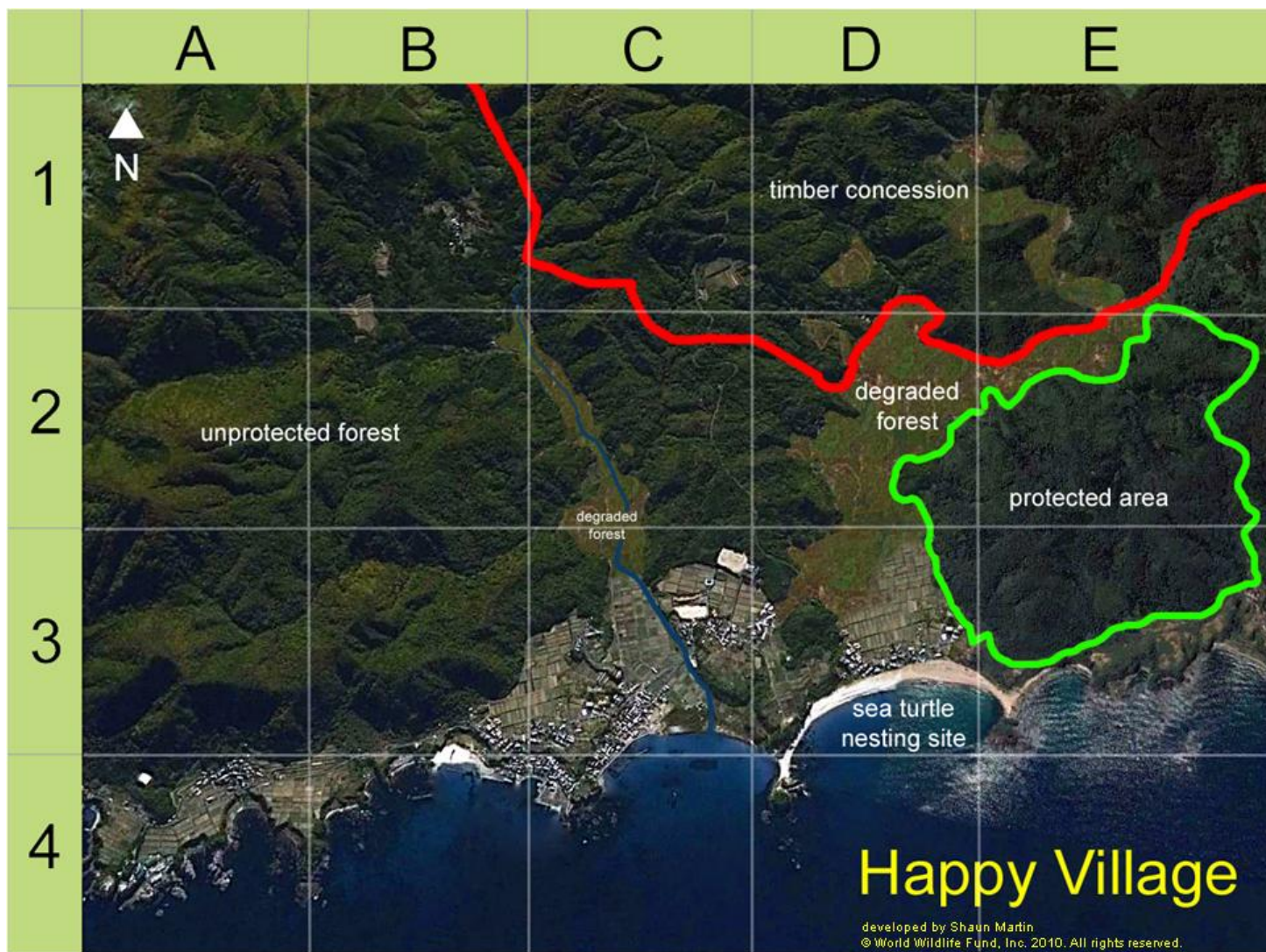
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Options to consider

- Begin to log in the unprotected forests (A1-3, B1-3) where trees are still healthy.
- Begin to illegally log the remaining healthy trees in the timber concession area owned by the logging company.
- Begin squatting and farming (settling without title to land) in the degraded forest lands near the village (C2, D2, D3).
- Leave your families and seek employment in another village.





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Group H

You are villagers from Sad Village located in the mountains about 25 km north of Happy Village. You have all lost your homes, farm land, and livelihoods due to a recent storm and resulting mudslides. You did not have insurance and the government has not been able to provide assistance to your village. You heard that things are better in Happy Village and you plan to move there. Some of you have visited Happy Village before and are familiar with the area, but none of you has family members there. You are now planning the best options for you and your families.

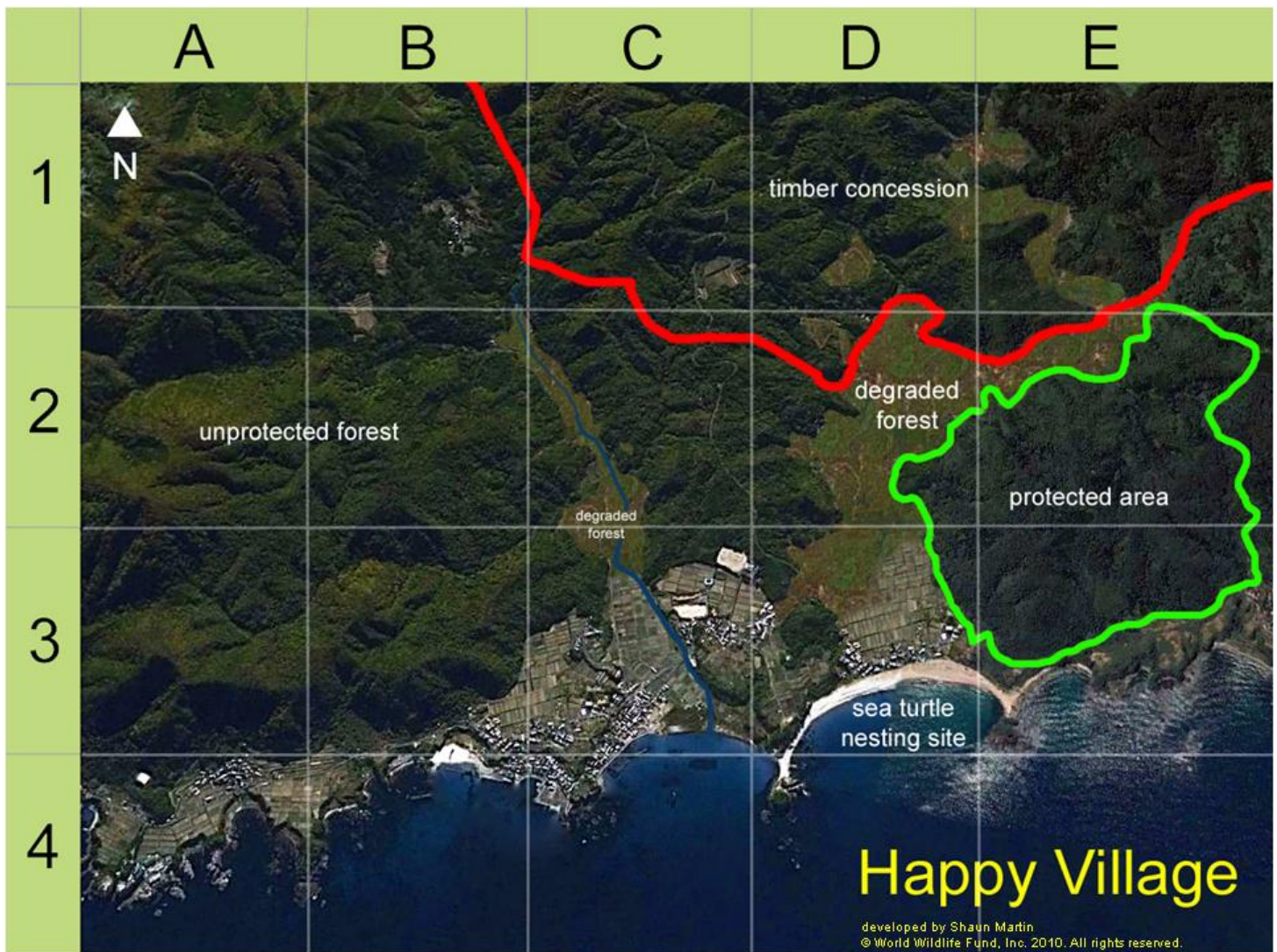
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Options to consider

- Build homes and begin farming in the degraded forest lands near the village (C2, D2, D3), which is community land and is suitable for agriculture.
- Build homes in the village and earn your livelihood by logging in the unprotected forests (A1-3, B1-3) where there are valuable tree species.
- Build homes along the coast and earn your livelihoods by fishing.





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