There are many biospheres across the world. A biosphere reserve is established to
perverse the biological diversity of a particular region in the world. These reserves
protect the plants, animals, natives and overall environment of the area. India contains
several of these biosphere reserves. One of these
is the Great Nicobar biosphere reserve, which is
located on the Great Nicobar Island located east
of India. This biosphere reserve was created in
January of 1989 and consumes about eighty-five
percent of the island (Andaman and Nicobar
Islands). The island has a wide range of species that contribute to the diversity of India.
Many of these species found there are also native to the surrounding Andaman Islands
(Negi). The Great Nicobar biosphere reserve contains a diverse amount of life that is
very important to the biological diversity of India.

The Great Nicobar biosphere reserve was established in 1989 for several reasons.
First and foremost, ecologists wanted to preserve the organisms that inhabit Great
Nicobar and the surrounding Andaman islands, particularly the exotic or nearly extinct
species. They also wanted to research and monitor certain aspects in the reserve and keep
the area open for education and training. The biosphere reserve is managed to offer
protection of the island’s natural ecosystem from human overpopulation (Andaman and Nicobar Islands). Overpopulation is a problem because humans can pose certain threats to biosphere reserve.

Great Nicobar is located among the Andaman and Nicobar islands. It is the southernmost island that is surrounded by the Bay of Bengal and Andaman Sea. The total area of Great Nicobar is about 1045 square kilometers (Negi). The biosphere reserve area on the Great Nicobar is mostly (about 85%) biosphere reserve, while the remaining part of the island (about 15%) is for agriculture, forestry, and settlements (“Biosphere Reserves in India”). The inland of the island is covered with dense tropical forests and rugged hills, while the shores of the island are narrow and flat (Andaman and Nicobar Islands). The coastline is relatively shallow with coral reefs. There are many salt-water creeks that flow into the inland of the island forming numerous amounts of bays and inlets. There is only one fresh water river that is located on Great Nicobar, the Galathea River. All others are small streams that usually dry up in the summer months (Andaman and Nicobar Islands). These are the major geological features of the Great Nicobar biosphere reserve.

The biosphere reserve on Great Nicobar has a tropical climate. The temperatures are relatively warm most of the year and the environment is very moist and humid. There are two main periods during the year in Great Nicobar: a dry season that usually runs from October until March, and an unpredictable rainy season that occurs between the months of April and September. Monsoons are also quite frequent during the rainy season.
and often peak throughout the windiest months of the year (World Wildlife). Overall, Great Nicobar has relatively stable climate for most of the year that is separated by the rainy and dry seasons.

The Great Nicobar biosphere reserve is home to different kinds of animals. Most of these animals are native to the island, while others are more common animals. The Nicobar Treeshrew is endemic to India. It lives in subtropical or tropical dry forests and is threatened by habitat loss. Great Nicobar is also home to other endemic mammals like the Andaman Wild Pig and other mammals like the Crab-Eating Macaque, the Palm Civet, fruit bats, squirrels, rats, blue whales, and dugongs. Many birds live on the island as well. The Nicobar Megapode, or Nicobar Scrubfowl, is a bird found in some of the Nicobar Islands. Another bird endemic to India is the South Nicobar Serpent-eagle, a bird of prey. They live in subtropical or tropical moist lowland forests. They are becoming rare due to habit loss. Nicobar Parakeets are parrots confined to the Nicobar Islands. They are the largest of the “true parakeets” at 60 cm. Very little is known about the ecology and conservation status of the Nicobar Parakeet. Great Nicobar is also home to other birds like the White-bellied Sea Eagle, common Parakeets, Green Imperial-pigeons, the Swiftlet, the Myna, the...
Junglefowl, common parrots, the Racket-tailed Drongo, and the Koel. Different species of reptiles and crustaceans live in Great Nicobar as well. Saltwater crocodiles, giant leatherback turtles, Malayan box turtles, reticulated pythons, and water monitor lizards are the kinds of reptiles one could find in Great Nicobar. Great Nicobar is also known as home to the Giant Robber Crabs.

Great Nicobar has a vast variety of flora and different types of forests in which the plants live and grow. The Hilltop tropical evergreen forest is home to plants such as the Canarium maii, the Cratoxylon furmosum, the Dipterocarpul costatus, the Euphorbia sp., the Hopea andamanica, and the Meusa ferra. (Negi) The bamboo species Bambusa sp., Dendrocalamus sp., and Oxytenantheara sp. make up the wet bamboo brakes.

(Negi) Semi-evergreen forests in Great Nicobar are home to plants like the Ablizzia chinesis, the Albizia lebbek, the Artucarpus chaplasha, the Calophyllum soulattri, the Dipterocarpus sp., the Pterocarpus sp., and the Sterculia campanulatum. (Negi) The moist deciduous forests are home to the Albizia chinesis, the Pterocymbium sp., the Terminalia biata, and the Terminalia procera. (Negi) Littoral Forests on the island are home to many plants such as the Calophyllum inophyllum, the Casuaria equisetifolia, the
Terminalia cutappa, the Barringtonia asiatica, the Guettarda speciosa, the Heritiera littoralis, the Ochrosia opportunifolia, the Pongamia pinnata, the Cycas rumphii, and *Ixora* sp. (Negi) Mangrove forests that grow around the sea have plants such as the *Areca triandra*, the *Avicennia officinalis*, the *Bruguera conjugata*, the *Bruguiera parviflora*, the *Carellia branchiata*, the *Ceriops tagal*, the *Kandelia candel*, the *Nipa fruticans*, the *Rhizophora candelria*, and the *Rhizophora mucronata*. (Negi) Heritieria Forests in Great Nicobar are home to the *Barringtonia asiatica*, the *Barringtonia racemosa*, the *Heritiera littoralis*, the *Acanthus* sp., and the genus *Brownlowia*. (Negi) Great Nicobar is also home to plants like the *Adenanthera pavonia* and the *Mangifera*.

The flora on Great Nicobar Island is very diverse. Orchids, which are flowering, plants, contribute to the great biological diversity on Great Nicobar. They thrive well on the island because of the tropical climate. The moist weather produces great habitat for the species to grow and reproduce, which is why there are so many found through the biosphere reserve. The island has over thirty-two species of orchids, four of which are considered rare and endemic. For example, the *Eria bractescens* and the *Phalenopsis speciosa* are two orchids that are considered rare and found only in that region (Gupta, 1372). The marine life surrounding Great Nicobar also contributes to the diversity of the flora on the biosphere reserve. There are many different species of algae, seagrass, and mangroves that inhabit the coastlines. The substrate and water temperature contribute to the growth of...
these marine flora. Common algae species found off the coast are *Turbinaria* ornata, *Halimeda* and *Cladophora* species (Jagtap, 57). The island does consist of a more diverse amount of flora that includes trees, flowers, and plants. The flora on Great Nicobar contributes to a large percent of biological diversity on the island.

Great Nicobar is also home to the natives, the Shompens. These natives were thought to have migrated from the Malaysian regions and occupied the area for over two thousand years. There are currently about one hundred fifty to two hundred Shompens that inhabit Great Nicobar. They are divided up into two groups. One group of Shompens inhabits the coastal regions of the island, while the other lives mainly in the interior area of the island. The Shompens survive by hunting and gathering food sources from the forest and often fish in the coastal waters. Their diet is very diverse that consists of Nicobar pig, wild fruits, yam, honey, crabs, fish, and many other native foods from the island (Regional Medical Centre). The Shompens know a lot of information about the island that help them to survive. Despite their native knowledge, though, the population of the Shompens is declining. Scientists believe that Shompens are declining because of the increase in settlers from the mainland of India, who started traveling the island in the early 1960s. The Shompens were originally relatively shy to these foreigners but have since then became comfortable with the newcomers. The increased contact between the settlers and the Shompens has caused an increase in the spread of foreign viruses and diseases that have a great impact on the Shompens (Regional Medical Centre). The Shompens are an important tribe that contributes to the biosphere reserve of Great Nicobar.
The biosphere reserve was designed to protect the biological diversity of Great Nicobar. Unfortunately though, there are many pressures and threats that affect this delicate ecosystem. First of all, there is an increase in human population. Since the 1960s, more and more settlers have been coming to the island. Since the increase in population, the settlers have cleared out part of the island’s natural habitat. Scientists estimate that 4 percent of Great Nicobar’s forest has been lost to mainlanders (World Wildlife). This is very detrimental to the biosphere reserve because the settlers are destroying sections of the forests where organisms live, possibly organisms that scientists have not discovered yet. Along with the increase in population, poaching has increased as well. There are many poachers from neighboring countries, who collect sea cucumbers and the edible nest swiftlet bird and poach sea turtles, the Nicobar megapode, and crocodiles (Andaman and Nicobar Islands). It is important that the human population be kept to a minimum on Great Nicobar so that the biodiversity on the island is protected.

There are other dangers besides human population that threaten the biosphere reserve. First pollution and marine debris are taking a large toll on the island. Pollution and marine debris enter the ocean mainly through oil spills and dumping. This has a huge impact on aquatic life and terrestrial life (Andaman and Nicobar Islands). Plastic found in marine debris is harmful to life as well because it contains the dangerous compounds PCB and DDT. Organisms can mistakenly ingest the debris, which has a negative toll on the population especially certain species of sea turtles (‘Marine Debris in Great Nicobar’, 574). If pollution is killing organisms along the coastline, then the heterotrophic bacteria are increasing in number to decompose this organic matter. A group of researchers found that the increase in these bacteria might pose a concern for human health (Swarnakumar
and Thangaradjou, 129). Therefore action must be taken to control the amount of debris and oil that continually affect the lives of aquatic and terrestrial organisms on the coastline of Great Nicobar.

Tourism is developing on the Andaman and Nicobar Islands. Tourists can view the reserve; however they do need a special permit. The best time to visit Great Nicobar is between the months of October and April. During this time, the beaches are the most popular tourism spot on the island, where tourists can snorkel, scuba dive, and swim. The two national parks on Great Nicobar, Campbell Bay National Park and Galathea National Park, are also popular among tourists (India Tour.Travel). The National Parks offer a glimpse of the biological diversity found on the island.

Great Nicobar is an important biosphere reserve in India. It contains a vast array of biological diversity. The biological reserve on Great Nicobar protects the endemic species, but unfortunately pollution and increasing human population are destroying these species. People across the world need to make changes so that these unique species do not become extinct. Everyone needs to take small actions to protect the biological diversity, not only on Great Nicobar, but also across the world.
Bibliography

Negi, Sharad Singh. “Biosphere Reserves in India.” New Delhi: Indus Publishing Company, 1996. The author explains that the many objectives of biospheres. The book describes each of India’s biosphere reserves. It was helpful to our group because we learned a lot about our biosphere reserve: Great Nicobar. We learned that the reserve has a diverse amount of both plants and animals that inhibit the island. This book was very advantageous to our research because it contains various details about Great Nicobar such as the geography, climate, and ecosystem.

Gupta, Stutee. “Orchid Diversity of Great Nicobar Biosphere Reserve.” Scientific Correspondence 86 (2004): 1372 – 1374. This article reported that Great Nicobar is home to a few very rare species of orchids that contribute to the diversity of the biosphere reserve. We learned that the environment of Great Nicobar creates conditions that are very beneficial to the growth and survival of orchids. The article was very useful because we learned about the diverse species of orchids that are native to the island.

S. Ramachandran. “Ecological Impact of Tsunami on Nicobar Islands.” Research Communications 89 (2005): 195 – 200. The author describes the effects of the 2004 tsunami on the Nicobar Islands. The tsunami caused significant damage to the ecosystems of the islands that will have long lasting effects. Descriptive maps compared the before and after effects of the tsunami. This source was very beneficial to our research because we discovered that natural disasters, like a tsunami, are devastating to an ecosystem.

The Shompens are an aboriginal tribe that inhabits Great Nicobar, who were thought to have migrated there from the Malaysian regions. The article discussed how the Shompens live by hunting various animals and gathering several plant species to survive. This tribe along with a few others is on slowly diminishing and will probably become extinct if no action is taken. We learned that the Shompens are important for the biosphere reserve because they possess a great amount of indigenous knowledge. It was helpful to our research because we learned how tribes are able to thrive on the island.

Dr. Daniels, Ranjit. “Pattern of Distribution of Vertebrate Diversity in Great Nicobar Reserve.” 1997 <http://envfor.nic.in/divisions/re/ta5p6.html>. The author conducted research to discover patterns of the distributions of vertebrates throughout the Great Nicobar Islands in relation to food and location. The author found that there was no localization of the vertebrae species and that they were commonly found among coastal regions and interior forests. This research contributed to our understanding of the habitats of vertebrates on the island. Overall, we realized that there is a lot of unity among the diversity in Great Nicobar.

Negi, Sharad Singh. “Biodiversity and Its Conservation in India.” New Dehli: Indus Publishing Company, 1993. This book defines the meaning of biodiversity and how biospheres throughout India were established to help preserve this diversity. We learned about the many different biospheres in India, especially Great Nicobar. The book went into detail about forest ecosystems, rare and threatened animals, and biological diversity. All of these topics contributed greatly to our project.

This journal entry is all about the different marine plants in the ocean around Great Nicobar. The article explains the different kind of algea, coral, seaweed, and other kinds of flora found in the ocean. It states the different kinds of species of these plants and explains them. The author supplies general information on the types of flora found in the ocean around Great Nicobar.


This article explains the marine debris in Great Nicobar. Most of the debris enters the ocean directly by dumping or indirectly by rivers, streams, storm drains, etc. There is a great amount of plastic in the ocean around Great Nicobar. This plastic is harmful to both the animals and plants that live in the ocean. Plastic pieces can also be a “poison pill”, as they can attract and hold hydrophobic compounds like PCB and DDT. The article explains the dangers of the marine debris to the ecosystem.

“Great Nicobar Biosphere Reserve, Nicobar” 16 March 2009. 30 Sep. 2009

This online article gives some basic information on the location of Great Nicobar. The author also talks about The Great Nicobar Biosphere Reserve and its goals. The main objective behind The Great Nicobar Biosphere Reserve was to preserve biological diversity. This article has information on other goals of the reserve and the species of the flora and fauna found in the reserve.
N.S. Swarnakumar, T. Thangaradjou. “Distribution of Total Heterotrophic Bacteria in the Coastal Waters of the Great Nicobar with Special Reference to Human Pathogens.” National Academy Science Letters 30 (2007): 129 – 134. This article discussed the role of heterotrophic bacteria in the decomposition of organic matter. A study was conducted by a group of researchers that found there is a high amount of bacteria in coastal regions which may pose a concern for human health. We found this source helpful because we learned about microscopic bacteria that affect life on a macroscopic level on Great Nicobar. There were also helpful diagrams in the article that compared different heterotrophic bacteria in the area.

“Biosphere Reserves in India.” C.P.R. Environmental Education Center. 2007. <http://www.cpreec.org/pubbook-biosphere.htm>. This website was beneficial to our group because it contained general information about the biospheres in India and various information about each reserve. There were many helpful pictures and maps that portrayed the regions. Overall, we considered the source very helpful to our research.

This website was very helpful because it contained a wide variety of information about the Great Nicobar biosphere reserve. It described the flora and fauna of the area, the management strategy, and pressure and threats in the region. There was also a helpful map that showed us the biosphere reserve along with two national parks located on the island. This source broadened our research of the reserve.

The Nicobar Islands Rainforest website contained a lot of information concerning Great Nicobar. We learned about the geography, biodiversity, and types/severity of threats. We also learned that the conservation status of the island is critical/endangered. The site was an excellent source for our paper. It also had an interesting satellite view of the island.

“Health and Nutritional Studies Among Shompens.” Regional Medical Research Centre.  
<http://www.rmrc.res.in/projects/tribes/complete/shompen.htm>

The Regional Medical Research Centre provided our group with information about the indigenous natives to Great Nicobar, the Shompens. We learned that the Shompens were hunters, gatherers, and fishers, who lived on the land from the island. They also were classified as “semi-nomadic” forest dwellers.” The article also explained that the population of the Shompens is declining, possibly because of malnutrition and increased human population from the mainland.

“Andaman and Nicobar Travel.” IndiaTour. Travel. 2009. 
<http://www.indiatour.travel/andaman.htm>

This site contained helpful information about traveling to Great Nicobar. We learned that tourists need a permit to travel to the Islands and can get there by either plane or boat. Beaches are also a popular destination for tourists on the islands. We learned that tourists can visit the two national parks that are located on Great Nicobar. Overall, this website gave us useful travel information about the biosphere reserve.

This online article gives some basic information on the location of Great Nicobar. The author also talks about The Great Nicobar Biosphere Reserve and its goals. The main objective behind The Great Nicobar Biosphere Reserve was to preserve biological diversity. This article has information on other goals of the reserve and the species of the flora and fauna found in the reserve.


This book has information on all of India’s national parks, wildlife sanctuaries, and biosphere reserves. The parts of the book on the Great Nicobar Biosphere Reserve are the ones we are most interested. It gives a general overview on the Biosphere reserve and gives information on the plants, animals, geography, and climate of the biosphere reserve.


This website gives information on one of Great Nicobar’s National Parks, Campbell Bay National Park. There is information on the park and its flora and fauna. The website also gives the best times to visit the park. This is a good source for information on tourism and flora and fauna.
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