Nanda Devi Biosphere Reserve

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Amanda Doerfler
Sarah Frederick
Kaitlyn Stanoski

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Dr. Hamilton
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NANDA DEVI

The Nanda Devi Biosphere Reserve is located in the northern part of India and borders China. The Nanda Devi, itself, is a mountain in India, which is a part of the Himalayan Mountain range. The center or core of the biosphere reserve is the Sanctuary, and it attracts many tourists and mountaineers. One of the most significant locations in the biosphere reserve is The Valley of Flowers National Park which includes many plants and animals. “The Nanda Devi Biosphere Reserve is significant in many ways.” (Nanda Devi Campaign)

The biosphere reserve concept is considered to be a major achievement in environmental management. (Dyer) Biosphere reserve is classified as a type of preservation area selected by the United Nations Educational, Scientific and Cultural Organization. They long to establish an international network of confined areas surrounding examples of the Earth’s major vegetation and physiographic types. (Allaby) Furthermore, they are to enhance human civilization in regions suffering environmental deprivation. All biosphere reserves are a component of heterogeneous landscapes that have a hierarchical structure. (Dyer)

The Nanda Devi Biosphere Reserve is in the extreme northern part of India on the country’s border with China. It takes up a great deal of mountain space in the Uttarakhand Himalayas (Nanda Devi Campaign). This location gives the biosphere a certain climate, which results in the types of animals that live there and the plants that grow in the area.

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How the Nanda Devi Biosphere evolved is very complex, yet very significant. In 1962, the India-China War closed the border perpetually. This affected trade and migration routes of the Bhotiya people who eventually turned to trekking and tourism to make a living. To help enhance the local economy, the Nanda Devi opens and becomes the second most popular destination in the Himalayas next to Everest. With mountaineers’ expeditions in the Nanda Devi, scientists started noticing severe ecological damage by 1977. (Nanda Devi Campaign) Waste was accumulating and the high level of traffic passing though newly opened trekking routes made scientists become ever more concerned. In 1982, the Nanda Devi Sanctuary was shut down and tourists, treks, and mountaineers were banned. The purpose of this was to save this national monument from any further extent destruction and to allow time for the ecosystem to repair, advancing it to a level of a National Park. At this point the villagers were relying on the tourist trade, so this was as a massive disappointment for them. (Nanda Devi Campaign) The Sanctuary was then officially transformed to a National Park, which later became the core of the Nanda Devi Biosphere Reserve. Finally, in 1988, it became a full-fledged biosphere reserve. (Nanda Devi Campaign) This was to be one of the fourteen established throughout India to represent the country’s massive biological and geographical diversity. The people who lived in the surrounding communities did not like this because the decision on making it a reserve was decided unilaterally. The villagers took pride in their lifestyle and they wanted to maintain their independence, so there was no local participation towards the reserve. (Nanda Devi Campaign) The Indian Mountaineering Foundation increased the Uttarakhand state governments consent to enter the core zone and determined the possibility of reopening the park to tourism in 2001. Local villages forced the government to consider community rights first before anything was said and done. (Nanda Devi Campaign) A declaration was issued for community-based ecotourism conservation later in 2001. Under new leadership in 2004 a fresh policy was
proposed allowing regulated tourism with guaranteed community participation. (Nanda Devi Campaign)

Nanda Devi is a mountain in India which is part of the Himalayan mountain range. It contains National Parks, Biosphere Reserves and valleys. Nanda Devi National Park is a “World Heritage site that lies in eastern Uttaranchal state, near the Tibetan border in the Garhwal (western) Himalaya, 300 km northeast of Delhi” (McGinley). The park leads through the almost inaccessible gorge of Rishi Ganga to a basin surrounded by high mountain ridges. The Valley of Flowers is located in the Paspawati Valley 23 km North-Northwest of Nanda Devi Park. “Nanda Devi is India’s second highest mountain” (McGinley). The upper Rishi Valley is known as the Inner Sanctuary. Glacier formations cover the basin. The glaciers form different rock formations and make the basin look interesting. “The Tethys sediments from Nanda Devi itself and with many of the surrounding peaks, displays spectacular folding and evidence of thrust movements” (McGinley). The valley is “20 km northwest of Nanda Devi National Park across
the wide valley of the Bhiundhar Ganga” (McGinley). Nanda Devi has unique land formation as well as climate.

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The Nanda Devi Basin has a microclimate. The climate is dry with low yearly precipitation. It has heavy rainfall during the monsoon season, which is from late June to the beginning of September. This contributes to the lush vegetation. The Valley of Flowers shares this similar climate pattern. These two areas are usually snowbound for six to seven months from late October and March. The snow is deeper at lower altitudes on the south side than on the north side of the valleys. The temperatures range from 10° - 23° C from April to June, and from 7° - 22° C from July to October.

The mountain possesses a wonderful vast wilderness and this led to its protection. “Surveys of the flora and memalian fauna were carried out by Botanical Survey of India and Zoological Survey of India respectively. The Nanda Devi Scientific and Ecological Expedition conducted floral and fauna surveys and habitat assessments in 1993” (McGinley). The research contributes to park management. In 1997, the Wildlife Institute of India discovered that there were five species new to science. “A research nursery and seed/rhizome/tuber bank for propagating rare plants and valuable medicinal herbs has been created at Musadhar near the
Rare and valuable medicinal plants are the subject of special programs” (McGinley). The research continues in Nanda Devi. Nanda Devi’s National Park was declared a Park in 1982. In January 1988 it was established as a Biosphere Reserve. In December 1988, it was declared a world heritage site by the United Nations. “This research supports many plant and faunal species. Uniyal documented 35 butterfly species belonging to 25 genera and four families” (Uniyal).

Nanda Devi has a vast ecosystem. It is made up of plants, animals, and other organisms. The Valley of Flowers has over 600 species. The valley has three main vegetation zones. “The habitats include valley bottom, river bed, small forests, meadows, eroded, scrubby and stable slopes, moraine, plateau, bogs, stone desert and caves” (McGinley). There are many different species of plants. “The Forest Research Institute in 1992 recorded 600 species of angiosperms and 30 pteridophytes in the valley and surroundings” (McGinley). There is a dominant family known as Asteraceae. It contains 62 species. “Forty-five medicinal plants are used by local villages and several species, such as Saussurea obvallata are collected as religious offerings to Nanda Devi and other Deities. It is noted as a Centre of Plant Diversity.

In the Nanda Devi Biosphere Reserve there are 76 wood species. “They are trees: 24, shrubs: 52, and 13 forest communities” (Joshi). The density of trees was significantly lower in
temperate forests in comparison to sub-alpine forests. “It is essential that the state of vegetation cover is monitored regularly” (Bist). Nanda Devi Biosphere Reserve is used to “conserve the biodiversity and integrity of plants, animals and micro-organisms” (Bist). The forest cover in the Biosphere Reserve has showed an increase and needs to be maintained.

Insects were studied in the Nada Devi ecosystem. There was a “total of 91 species of insects belonging to 33 families and 7 orders recorded” (Joshi). The trophic structure was determined by the insects feeding habits. They were categorized as herbivores, predators, and saprophagous. “Herbivorous insects were most dominant both in terms of number of species richness and abundance in the study area, followed by predators and saprophagous” (Joshi). Nanda Devi’s insect species add to its vast ecosystem.

The Nanda Devi Biosphere Reserve has a variety of many rare kinds of animal species. There are about 83 species of animals that are reported from this reserve. They include Common Langur, Himalayan black bear, Himalayan Thar, Common Leopard, snow leopard, Mainland Serow, bharal(Blue Mountain goat), brown bear, Goral, and Himalayan musk deer. (NDNP) There are also a variety of birds because the entire Nanda Devi Biosphere lies within the Western Himalayas Endemic Bird Area. In this area there are a total of 114 bird species; which was recorded during the 1993 Nanda Devi Scientific and Ecological Expedition. Some of these plentiful species include Grosbeak, Rose Finch, Crested Black Tit, Yellow-bellied Fantail Flycatcher, Orange-Flanked Bush Robin, Nutcracker, Ruby Throat etc. (NDNP) The Nanda Devi National Park also includes rich assortments of butterflies. It is said to be around twenty-seven species including the Common Yellow Swallowtail, Queen of Spain, and Indian Tortoiseshell. (NDNP)
Unorganized mountaineering activities threatened the biological integrity of the national park (Silori). Pollution is one of the biggest problems caused by tourists. The camping sites on the trails become polluted with garbage from hikers not cleaning up after they leave. Rivers and streams also become contaminated with leftover garbage, causing harm to the animals living in them and drinking from them. Deforestation and forest fires are also environmental problems that the Nanda Devi Biosphere needs to control (Silori). Forest fires are the result of irresponsible fire building when out in the campsites of the park. Human impact in this biosphere reserve appears to have harmed, more than benefited, the national park.

One case where human impact helped the biosphere reserve was the Chipko movement when village women saved forests of the area (Nanda Devi Campaign). They stopped deforestation from occurring in their local forests one year. The residents of Nanda Devi want to do anything they can to help save their environment and keep it flourishing for as long as possible.

The most famous activity in the Nanda Devi National Park is trekking. Tourists and mountaineers come from all over to experience the trekking routes. Found on these trails are the animals that like to stay well hidden and away from all the busyness of the human population. ("Nanda Devi National Park")
Nanda Devi has an organization called the Mountain Shepherds Initiative. This sets up an actual itinerary for those who want to go trekking in the mountain. Shepherds guide the tours and tell all about the mountains and landscape of the area. Tourists have the choice to walk on the trail, or they may ride a horse, or bicycle. For those who want the full outdoor experience, tents and sleeping bags are provided for sleeping at night. There are also roadside villages that have private rooms inside wooden and stone houses. (Nanda Devi Campaign)

The Nanda Devi Reserve was most popular to tourism when it was considered a sanctuary, but when it was converted to a national park the tourism stopped. After some years of the park being a biosphere reserve, it was opened up to a limited amount of ecotourism to help preserve the natural wildlife and environment. (Nanda Devi Campaign)
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