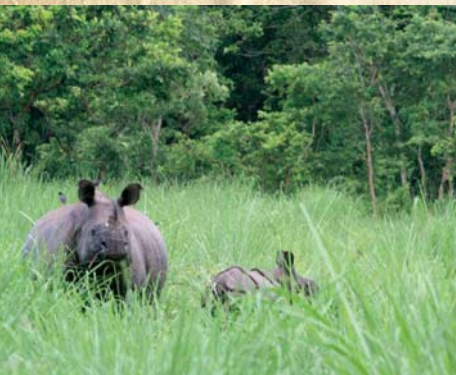


# INDIA EXPEDITION

## Studying the Habitat of the Greater One-Horned Rhino in West Bengal

For her 2005-2006 field season, Gitanjali Banerjee carried Wings WorldQuest Flag #6 into the lush grass floodplain of the Jaldapara Wildlife Sanctuary near the Torsa River. This expedition was part of Gita's multi-year project to provide wildlife managers with information about the feasibility of available grass and plants to sustain endangered populations of co-existing herbivorous wildlife.



### MEASURING COMPETITION FOR GRASSLANDS IN WILDLIFE "ISLANDS"

India has set aside land to preserve rhinos, gaur (Indian bison), and other large species of the subcontinent. Gita, a wildlife scientist currently pursuing her doctorate, felt it was critical to understand how large herbivores interact and to determine if these grassland animals continue to thrive.

Little was known about the nutritional ecology of greater one-horned rhinos vis-à-vis other herbivore species. Gita wondered if one-horned rhinos and gaur were competing for the same food, or if they and other herbivores obtained their fodder from separate sections of the sanctuary.

### PUTTING THE SANCTUARY INTO A HUMAN CONTEXT

Jaldapara Wildlife Sanctuary is in a beautiful setting, flanked by the Bhutan hills on one end and the Torsa River on the other. Jaldapara is surrounded by a rich mix of tribes with distinct lifestyles and traditions, as well as by small clusters of refugees from neighboring Nepal and Bhutan.

Many people use grass from the sanctuary for thatching the roofs of their mud huts and for

feeding their livestock. They also collect other plant life and firewood. Pressure from the human population is felt across Jaldapara's protected area and its perimeter – a major source of concern for the long-term existence of rhinos and other endangered species.

### FIELD TECHNIQUE: OBSERVING WILD RHINOS AND BISON SAFELY

Gita designed a study plan that required a daily perusal of several defined parcels of land (transects) within the Jaldapara reserve. She planned to count and to observe the large animals in each transect daily, to examine the animals' droppings, and to take small samples of their fodder.

Gita needed courageous assistants. The prospect of collecting samples amid 13- to 15-foot-tall grass, where rhinos, Indian bison, and elephants could be lurking undetected, dismayed even the most able-bodied men. Why not conduct research from elephant back?

The local park officials gave Gita permission to use park-patrol elephants for her day-to-day observation. She found two brave assistants – Montu Rai and Shyamal Urao, a 14-year-old resident of the sanctuary. Each morning around 5:00 A.M., the three met their elephant drivers ("mahouts") and climbed on top of the camp elephants. While the elephants lumbered forward, Gita and her assistants scanned the sea of grass for signs of life.

*"There have been innumerable memorable occasions on this expedition. The thrill of sighting a rhino, and especially one with a calf, is unparalleled to most aspects of wildlife watching.... The worst moments were being stranded at the top of a tree in the heart of the sanctuary surrounded by a herd of Indian bison around its base for almost 3 hours and startling a rhino at a waterhole that charged us at a distance of less than 50 feet!"*

– Gitanjali Banerjee

### WHO

Gitanjali Banerjee

### WHAT

Study the grassland habitat of the greater one-horned rhino

### WHERE

Jaldapara Wildlife Sanctuary, Jalpaiguri, West Bengal, India

### WHY

To understand if park grasslands are sustaining large endangered herbivores



Top: An endangered female one-horned rhino (*Rhinoceros unicornis*) protects her calf in the tall river grasslands of northeast India.

Bottom: Location of Gita's study area in northeast India





**FIELD TECHNIQUE: COLLECTING FIELD DATA AND SAMPLES**

Gita, Montu, and Shyamal began each day by recording herbivore abundance along the clearly marked transects in different types of habitat – tall grasslands, short grasslands, and woodland. Morning work focused on recording the phenology (cyclic changes) of the grasslands, noting signs of fresh grazing, and counting spoor droppings.



Obtaining samples was challenging in rhino-inhabited grasslands. If fodder samples were collected, the team had not only to dry, store, and mark the samples, but to keep them safe from goats, mold, and fungus until they could be transported to Gita's lab.

Different transects were monitored in late afternoon and early evening. After dusk, it was time to enter data and to prepare for the next day's tasks. Gita found the mahouts and field guards to be invaluable sources of information for both wildlife and field logistics.



**EXPEDITION RESULTS**

Gita felt that the expedition was successful because it resulted in an extensive database assembled about the large herbivores living in the sanctuary. The team documented tiger pugmarks (paw prints) along a riverbank in one of the marked transects, which was the first documentation of tiger presence in the park in five years – an indication that the tigers' prey base is increasing.

When analysis of the fodder samples is complete, wildlife officials will have ecological data to better manage the sanctuary. Best of all, her team's work has led to discussions with forest officials regarding enhanced monitoring techniques in the sanctuary, as well as future projects that might be undertaken together.

Top: Gita's research vehicle containing grassland samples from a day's work.

Middle: Montu, Shyamal, and Gita temporarily seek shelter from alarmingly close wildlife.

Bottom: Gita displays a leech clinging to a leaf – another potential risk while conducting research in a floodplain. [Photos: Suzi Zetkus]

**Read Gita's Blog:**

"Notes from Rhino Land" at:  
www.columbia.edu/~gb2025

**ABOUT GITANJALI BANERJEE**

Gitanjali Banerjee, a doctoral student at Columbia University in New York City, completed her master's degree in Wildlife Science at the Wildlife Institute of India, Dehra Dun, India. Her master's work concentrated on the relationship between nutritional quality of grasslands and habitat use patterns of the Indian rhino, the wild buffalo, the swamp deer, and the hog deer at India's Kaziranga National Park, which holds the world's largest population of wild one-horned rhinos. Her doctoral work continues to focus on conservation biology, management issues concerning small populations of rhinos and other endangered herbivores, and the development of creative, practical solutions to human-animal conflict.



**EXPEDITION SPONSORS AND FUNDING**

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Above: Three of the 108 rhinos that live within Jaldapara Wildlife Sanctuary, one of the five remnant herds in India. [Photo: Suzi Zetkus]

Top right: Gitanjali Banerjee holds Wings WorldQuest Flag #6 as a rhino watches from a safe distance in Jaldapara Wildlife Sanctuary. [Photo: Suzi Zetkus]