people do? Ultimately the people will be facing the same problems as they are today, but in ten years' time. In ten years' time they won't have grazing land for their cattle. It should be possible in Chitwan to develop a way of life that is compatible with conservation. At a recent conference in Italy I gave a presentation on the distinction between the Annapurna Conservation Area Project and the Makalu-Barun Conservation Project. I see a clear distinction. Both areas are designated as conservation areas. But whereas ACAP involves conservation for the people, in Makalu-Barun we are doing things the other way round. We are mobilising people for conservation. This comes down to enabling people to have sufficient resources without harming the core areas.

CR: How do you see the role of the army in protecting national parks?
TBS: In Chitwan at least the question of the army presence has unnecessarily become an issue of debate. The matter of cost has been raised as a major objection, but the soldiers have to be paid whether they are patrolling a park or doing drill on the Tundikhel. The debate should have been about the role of the army, and whether we want to change that, and to develop some dialogue between the park warden and the colonel or whoever. You can't talk about co-existence unless you recognise the existence of the entities involved. The army had been doing its job, protecting the park, and they should be given more power to protect, more scope to maintain dialogue with the people. Their role should have had a new dimension added to it, rather than their existence being questioned. When it comes to questioning something's existence, even a cat will fight back, not to mention the army. The presence of the army in the park is something that you need ultimately.

CR: Is there any dialogue at the moment?
TBS: No dialogue. Only debate. Debate about the presence of the army in the park. Now if the Makalu-Barun Conservation Project is initiated without the army, that's a different matter, and no-one is going to raise any objections. But the army has always been in Chitwan. They were responsible. And now we're suddenly saying, out you go. For places like Chitwan the army is important.

CR: Is the presence of the army equally important in the upland parks?
TBS: In Sagarmatha and Langtang the army is not important. It's redundant. In Shey Phoksumdo, it's a disaster. Why do we need the army there? The wildlife is protected by the religion itself. You don't need the army. The people themselves provide all the protection. You can see blue sheep within fifty yards. They aren't afraid of people, because people don't allow guns in the area. Now there is an army unit there, with their guns, and their itching fingers. Completely counterproductive.

CR: I know that the multidisciplinary approach of the Makalu-Barun Conservation Project has enjoyed some success. Does the IUCN also have a broad interdisciplinary base?
TBS: We have units on the Heritage Programme, Environmental Education, Environmental Impact Assessment, and on Environmental Planning at the District Level. Another small unit is the Public Information Programme, which produces a newsletter, organises exhibitions, that sort of thing. I think there are good reasons for improving such an approach. Scientists work in a given geographical area that's used by different disciplines. An area is not something that only one species of plants can colonise, or only one scientific discipline should occupy. My association with the Academy made me appreciate the tremendous importance of tradition and culture in the conservation of the natural environment.

The objective of this study using remote sensing data was (a) to document recent relief formation processes, and (b) to show how useful this method could be for mapping of hazard areas, which in turn might provide important information for planning and other measures for the protection of such areas.

The combination of different remote sensing methods was demonstrated by our investigation into a selected area along the Bagmati river in the southern part of the Khamyang Valley (Buchroithner et al. 1991). Various maps and series of space- and airborne remote sensing data were available for this area.

These investigations concentrated on geology, geomorphology, as well as aspects regarding the climate or soil and natural vegetation. The influence of natural changes on human activities (above all cultivation on terraced field) in the agricultural areas constituted the most important part of the study.

Extensive investigations in the Kathmandu Valley as a whole and in an adjacent part of the Mahabharat Lekh were carried out with the help of the existing topographical 1:50 000 scale maps (enlargements from the original 1:63 360 scale), satellite image maps, and LANDSAT image data.

The detailed studies near Katwal Daha in the Bagmati Valley would not have been possible without the large-scale Kathmandu Valley Maps 1:10 000 and 1:25 000 (Arbeitsgemeinschaft für Vergleichende Hochgebirgskunde 1977) and the corresponding aerial photographs produced within the framework of the Nepal Himalaya Research Scheme (cf. Höfer & Höfer 1982). Two different sets of aerial photographs were used: 23 x 23 cm size vertical, photogrammetric black & white images taken by Erwin Schneider on December 13, 1971 (cf. Kostka 1993); and 6 x 6 cm size vertical, stereoscopic colour slides taken by Erwin Schneider and Robert Kostka on December 10, 1986 (cf. Schneider & Kostka 1987).

The evaluation of these stereo-images provided graphic representations of the erosion- and abrasion-prone areas in this extensively used agricultural region of the Kathmandu Valley (f. figure below).

The area of this detail study comprised a rather flat section of the Bagmati river in the southernmost part of the Kathmandu Valley, lying just before the v-shaped gorge where the river breaks through the Mahabharat Lekh. As comparison shows, changes through erosion and abrasion, that have occurred in a period of 15 years, are rather insignificant in proportion to the total area. Larger changes can be found only near the banks of the Bagmati.

Nowadays, new and different types of spaceborne remote sensing data provide an excellent basis for such extensive investigations and overview studies. Still, as already mentioned, large-scale aerial photographs remain fundamentally to detailed investigations of this kind. These aerial photographs, we should add, are the fruit of the late Erwin Schneider's initiative and tireless efforts under the difficult conditions of this mountain area. Even during the last years of his
life, when ill-health prevented him from carrying out terrestrial survey work, he went on taking, from a Pilatus Porter aircraft, the aerial photographs by himself.

References
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The Ruins of an Early Gurung Settlement

Mark Temple

A recent visit to the ruins of a Gurung village provided evidence that supports current views about their origins.

Khola Songbre is one of the names by which the local people know a ruined village which is considered to be amongst the oldest Gurung settlements. The author visited the site in April 1992. The suggestion to go looking for these ruins came from Dr. Alan Macfarlane, a social historian who first researched among the Gurungs 25 years ago (Macfarlane 1976). He has known of the ruins for many years but had not visited them.

The Oral tradition among the Gurungs of many of the villages to the North East of Pokhara, including Thak, Tangting, Khilang and Siklis, is that their villages were founded by forebears who moved down from Khola Songbre. Gurung legends and myths recall long wanderings over forested mountain ridges (Gurung & Macfarlane 1990). The origins of the Gurungs are thought to lie to the North of the current homelands of West-Central Nepal. Their language is a variant of Chinese and Tibetan. Many thousands of years ago their ancestors may have lived in the high mountains of western China. So the tradition that their villages were founded by people from Khola Songbre can only represent the last chapter of a long story of migration. The ruins were reported to be high on the hillsides above Tangting.

Dr. Macfarlane suggested that if the ruined village was visited, the party should note the shape and number of the houses and photograph the ruins. The original shape of Gurung houses, oval or square, has been a question of some controversy amongst those interested in Gurung culture.

At Tangting the help of Damarsingh Gurung was enlisted to act as guide. His earlier interest in hunting had led him to know the jungle paths well. It took two days of not very hurried walking to arrive at the ruins. They are on the South facing slope of the ridge to the North of the Ganch Khola at a height of about 3300 metres. The area is the highlands to the South of Lamjung Himal but the accurate position is 28 degrees 22.7 minutes North and 84 degrees 11.7 East. To reach the site requires a one day detour from the main trekking routes from Tangting or Siklis to the Namun Pass. The site would