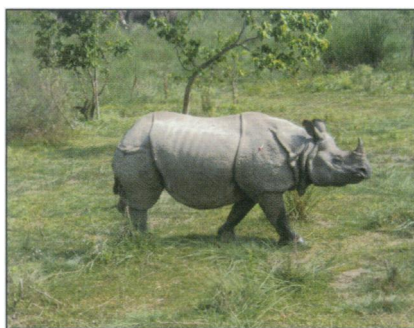


Relocation planned for one-horned rhino

Dinesh C Sharma

In a unique conservation plan, wildlife authorities have launched a program to relocate one-horned rhinos (*Rhinoceros unicornis*) from the overpopulated Kaziranga National Park (Assam, India) to other protected areas in the region. Kaziranga supports 1700 of the 2000 rhinos in Assam, which represents about 67% of the global population. Rhino numbers have grown to present levels from just a dozen in 1905, as a result of sustained conservation efforts. However, the species is under threat from poaching and the violent ethnic clashes prevalent in the region. In addition, the population is exceeding the ecological carrying capacity of the parks, resulting in increasing human–rhino encounters.

To remedy the situation, the Assam state wildlife department, with technical help from the



Courtesy of WWF/L Poston

Previous experience in translocating rhinos could help the Assam program.

International Rhino Foundation (IRF) and WWF, has launched “Rhino Vision 2020”. The program aims to increase the rhino population in Assam to 3000 in the next 15 years by expanding its habitat from the two established parks to seven protected areas. This will be done by gradually moving 20 to 30 rhinos from Kaziranga and Pabitora parks to five other protected areas. Some of these new areas had been home to rhinos previously, but populations were wiped out by poachers.

According to Tariq Aziz (WWF India), the protection of rhinos will also be increased in both source and recipient sanctuaries.

“Range expansion is necessary to avoid an all-the-eggs-in-one-basket syndrome”, explains Thomas J Foote (Program Director, IRF, Yulee, FL). “Ensuring long-term viability requires that populations attain certain minimal sizes to avoid genetic and demographic problems. They also need to be distributed over multiple areas to avert catastrophes such as floods, fires, epidemics, or episodes of poaching.”

The rhinos will be moved only after optimal security and habitat situations have been identified. Local communities are being involved fully in the process of range expansion; popular support is vital to the success of the plan. Foote confirmed that the experience and expertise gained through relocating rhinos in Nepal over the past two decades will be shared at intensive training workshops in Assam. ■

Chemistry: is green the new black?

Kathryn Senior

In February, DuPont (Wilmington, DE) announced its intention to pursue a more environmentally friendly research and development program to replace crude oil as a major raw material. The company already makes 10% of its products using non-petrochemicals and wants to increase this proportion to 25% by 2010. “Industrial biotechnology is an area in which we can differentiate ourselves, so we are spending a lot more than any other company on it”, says Thomas Connelly, Chief Science Officer at DuPont. According to James Clark (Department of Chemistry, University of York, York, UK), “DuPont is not typical. In fact, they are exceptional in their commitment to biotechnology, although other companies are also now increasing the amount they spend on alternatives research”.

One of the primary projects in progress is developing ways to use the

husks, ears, and stems of corn to produce vehicle fuel. There is also work on developing plant-based hair dyes, nail varnish, surgical bio-glues, and a textile fiber made from sugar. But just how viable is the program? – is it possible to replace oil with plants? “In principle, viable alternatives can be found for everything, but there are some areas for which it is more difficult – for example, aromatic compounds”, explains Clark. “The research needed to accomplish these things is going to take time. There are no fundamental technical ‘stoppers’, but we need to figure out how to do things”, says John Warner (Director, Center for Green Chemistry, University of Massachusetts, Lowell, MA). The alternatives must be economical and fully functional, he stresses.

The chemical industry has “evolved” a library of chemical transformations designed to generate high yields of pure materials with as few byproducts as possible. “This thinking has been the metric of success for developing new synthetic strategies”,

continues Warner. With a shift in emphasis to bio-based materials, he adds, they are now looking at processes that incorporate an entirely different philosophy. “We have living systems with a bunch of ‘other’ molecules present; the focus is now on separations and purification strategies.”

Warner also reports that the Forestry Products industry is very keen to become part of the more high-tech world, suggesting that the move towards chemicals from plant products is not a short-term move. From 26 to 28 April this year, Atlanta, Georgia is hosting the first International Conference on Nanotechnology for the Forest Products Industry. The conference will cover topics such as reinforced and interfacial structures, self-assembly and biomimicry, cell wall nanostructures, nanotechnology-based sensors, characterization and measurement of nanoscale structures and properties, health and safety programs, and strategic planning. ■