



# Population trends and the environment in Madagascar

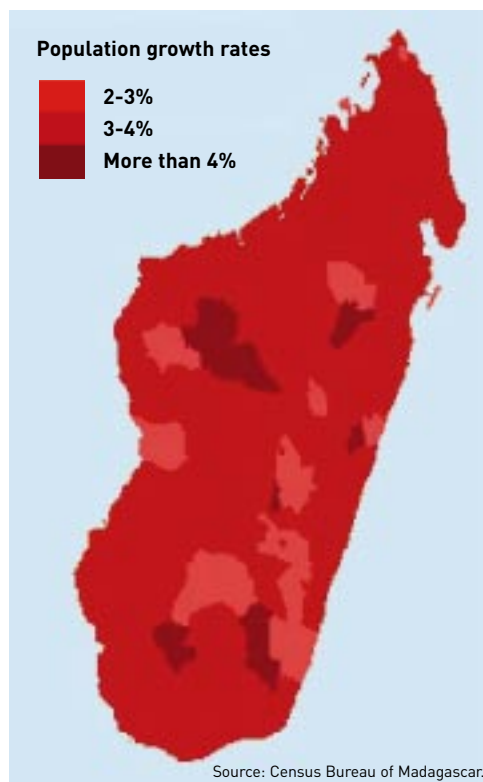
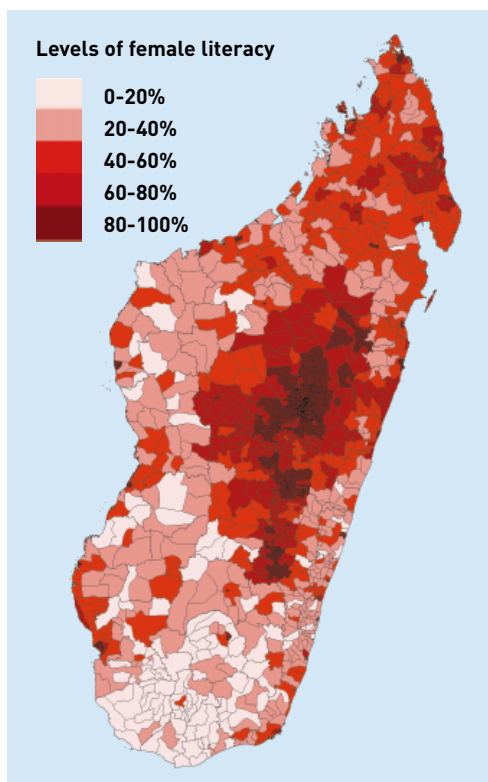
**T**HE ISLAND OF MADAGASCAR is a living laboratory of evolution. More than 150 million years ago, the widening Mozambique channel split Madagascar off from Africa and created the world's fourth largest island, covering more than 587 000 square kilometers.

An astonishing 98 percent of Madagascar's land mammals, 92 percent of its reptiles, 68 percent of its plants and 41 percent of its breeding bird species exist nowhere else on Earth. Madagascar boasts two thirds of the world's chameleons and 50 species of lemur, which are unique to the island. The dry and spiny forests are one of the many fascinating subregions of the island. Within this landscape, rare species of tortoise, including the radiated and angonoka tortoises, inch their way across the ancient landscape. Other residents include Verreaux's coua, part of a sub-family of cuckoo-like birds, and the sicklebill vanga. The spiny desert is also known for its plant species. Here, forests of

Didiereaceae, a unique plant family with no obvious affinity to any other, mix with endemic *Euphorbia* species. Sifakas, ringtails and other lemurs lounge in these unusual woody succulents.

The future of these remarkable plants and animals is far from secure. Massive deforestation has taken place since the 1970s. Only a fragment of the island's original forest cover remains and over 300 species of its plants and animals are threatened with extinction. The plight of the human population is also grim. With an average per-capita income of US\$216 a year and a foreign debt that nearly equals its gross national product, the island is ranked amongst the poorest nations in the world.

## POPULATION GROWTH AND FEMALE LITERACY



Madagascar's exploding population exacerbates its economic stress. The island's average population growth rate ranks among the highest in Africa at 2.8 percent per year. The population of around 14.1 million is expected to double by 2025. Since in-migration is negligible, population growth is driven by high fertility rates. In turn, poverty and a lack of reproductive health facilities contribute to the high fertility rate. Research has also shown a clear correlation between fertility and women's access to education. This is significant for Madagascar as over 40 percent of the female population over the age of 15 is illiterate. Female literacy is exceptionally low in the spiny forest but higher in the central highlands in and around the capital, Antananarivo.

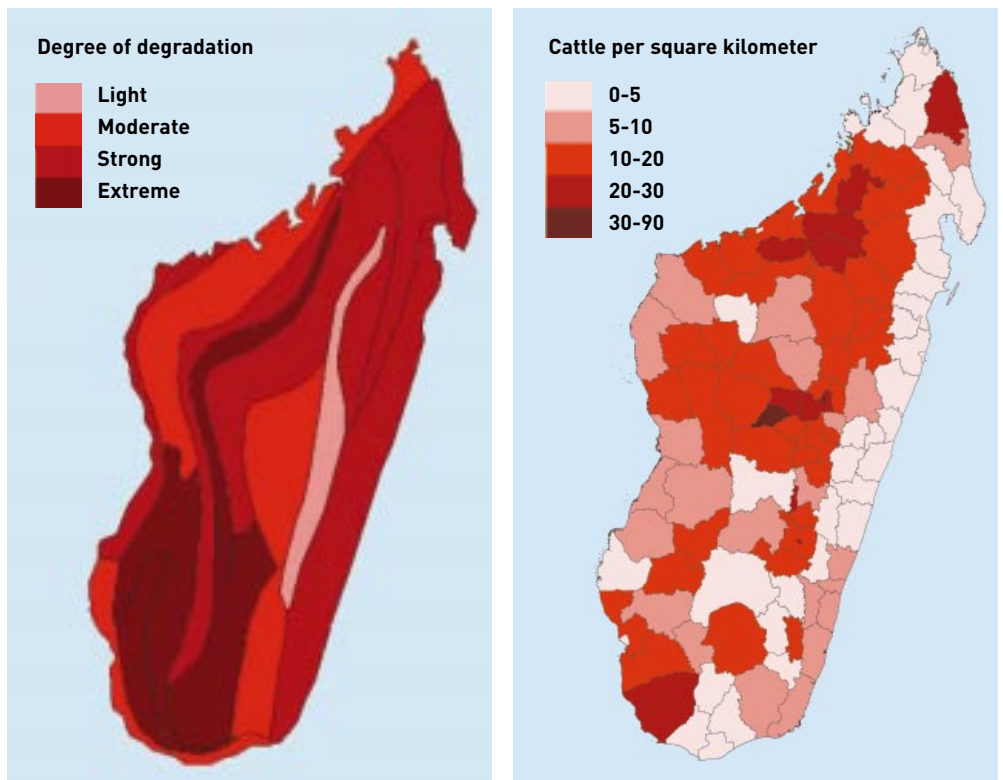
Understanding the significant relationships between population growth, fertility and literacy in Madagascar is important for those concerned with protecting the island's biological diversity. First, it suggests the need for fine-scale investigation into how specific demographic trends in and around important biological sites affect wild species and habitat. The results of these investigations could spur partnerships between conservation organizations, local agencies and communities. An effort to depress fertility through education may benefit natural spaces as well as improve the prospects for Madagascar's younger generations.

### LIVESTOCK AND THE ENVIRONMENT

To the Malagasy people, cattle have great cultural, spiritual and economic significance. As bargaining chips for exchanges including brides and personal property, cattle are a form of wealth, pride and financial security. The cattle culture is especially strong in central and southern Madagascar. Unfortunately, too many cattle on too little land have disastrous effects on natural habitat. Heavy grazing as well as slash-and-burn agriculture cause severe erosion even where human populations are comparatively sparse. The soils of western Madagascar have been degraded to the point where the native dry forests and thickets seem unable to regenerate. Exotic weeds are becoming more and more prevalent in the resulting savannah-like landscape. Needless to say, native fauna is disappearing at a startling rate.

The study of the spatial pattern of human and livestock demographic trends can help explain the current state of Madagascar's natural environment. Understanding the intricacies of human-environment relations is a prerequisite for protecting the island's environment for both people and wildlife. By assessing the human pressures associated with environmental degradation, WWF and its partners hope to understand and ultimately to stem threats to ancient and diverse habitats.

### LAND DEGRADATION AND LIVESTOCK DENSITY



Source: GLASOD/UNEP-GRID;  
Census Bureau of Madagascar.