

# AEECL Programme Sahamalaza

## Iles Radama: Conservation and study of critically endangered lemurs in northwestern Madagascar

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The blue-eyed black lemur (*Eulemur macaco flavifrons*; plate 9) is a highly endangered lemur taxon from the Sahamalaza Peninsula, northwest Madagascar. The population size is estimated to be in the low thousands. The subspecies *E. m. flavifrons* is still one of the least-studied of all lemur taxa. It exclusively occurs in a very small area of about 2,700 km<sup>2</sup> south of the Andranomalaza, north of the Maevarano, and west of the Sandrakota rivers, where it inhabits primary and secondary forests and forest fragments.



**Plate 9.** Female blue-eyed black lemur (*Eulemur macaco flavifrons*) in Sahamalaza. (© Nora Schwitzer)

The Sahamalaza Peninsula lies within a transition zone between the Sambirano evergreen forest region in the north and the western dry deciduous forest region in the south. Called the southern Sambirano, this area harbours semi-humid evergreen forests with tree heights of up to 30 m on ferruginous alkaline and alkaline soils based on sandstone, basalt or clay. Average annual precipitation is around 1600 mm. The dry season lasts from April to October, the rainy season from November to March. The vegetation in Sahamalaza both includes plant species from the Sambirano as well as from the western dry deciduous forests. The forests and forest fragments are separated through grassland with shrubs.

In addition to the blue-eyed black lemur, Sahamalaza is home to a secretive species of sportive lemur (*Lepilemur sahamalazensis*; plate 10) that was first described by science in February 2006 from the Ankarafa Forest on the Sahamalaza Peninsula. The Sahamalaza sportive lemur also seems to exclusively occur in this area. Even though nothing is yet known about the size of its remaining population, looking at the amount of available habitat the species is likely to be highly endangered, too. Other lemur species



**Plate 10.** Sahamalaza sportive lemur (*Lepilemur sahamalazensis*), a species newly described in February 2006. (© Klaus Krieger)

**Box 1. The blue-eyed black lemur (*Eulemur macaco flavifrons*)**

The blue-eyed black lemur is a critically endangered lemur taxon from northwest Madagascar. It exclusively occurs in a very small distribution area on and adjacent to the Sahamalaza Peninsula. Blue-eyed black lemurs are sexually dichromatic, the females being beige brown and the males being completely black. Probably because of these differences in fur colouration, the two sexes were regarded as different species and were thus described separately by science during the 19th century: Gray named the females *Lemur flavifrons* in 1867, and in 1880 Sclater described the males as *Lemur nigerrimus*. As nobody knew where exactly these animals came from, and no scientist seems to have seen them again for the 100 years that followed, the blue-eyed black lemur was by some authors regarded as a "neverending myth" until as recently as 1983, when the subspecies was finally rediscovered by L. Koenders during an expedition financed by Mulhouse Zoo and Strasbourg University. After subsequent genetic studies, the subspecific status of *Eulemur macaco flavifrons* was verified. Blue-eyed black lemurs are critically endangered because of their limited distribution area, fragmentation of their remaining habitat, and small total population size. The latter is estimated to be in the low thousands. In 1984 and 1986, some individuals from a non-viable subpopulation were captured and brought to Europe to become the founders of the blue-eyed black lemur EEP. The EEP is directly linked with an in situ conservation and research programme for the taxon, carried out by European and Malagasy scientists on the Sahamalaza Peninsula. All European zoos keeping blue-eyed black lemurs contribute to finance this programme through their membership in the Association Européenne pour l'Etude et la Conservation des Lémuriens (AEECL).

in Sahamalaza include the aya-aye (*Daubentonia madagascariensis*), the western bamboo lemur (*Hapalemur occidentalis*) and the newly described *Mirza zaza*.

The lemur species living in Sahamalaza are threatened by hunting and forest destruction. All over Madagascar forests are burned down at a very high rate, both for slash-and-burn agriculture and to gain space for grazing cattle. Blue-eyed black lemurs were assessed Critically Endangered (CR A2cd) by the International Union for the Conservation of Nature (IUCN) at their most recent Red List Assessment in April 2005, based on an 80% population reduction during the last 25 years. The same probably applies to the Sahamalaza sportive lemur, which was however not yet assessed at this Red List Assessment.

The Association Européenne pour l'Etude et la Conservation des Lémuriens (AEECL) is a consortium of 16 European Zoological Gardens and one University who have joined forces to carry out conservation and research projects for Madagascar's highly endangered lemurs

Since the late 1980s, AEECL has implemented or financed a number of different research projects, mainly on the cytogenetics, taxonomy and distribution of lemur genera such as *Hapalemur*, *Lepilemur*, and *Propithecus*. The Sahamalaza region has been in AEECL's focus of scientific and conservation interest since 1988. As one of its priorities, AEECL has been working on the creation of a reserve for the blue-eyed black lemur on the Sahamalaza Peninsula since a number of years.

The work of AEECL has led to the implementation of a UNESCO biosphere reserve in Sahamalaza in September 2001. On 26 January 2005 the Malagasy government issued a decree proclaiming an immediate temporary protection of the core zones of the future protected area Sahamalaza – Iles Radama, altogether comprising 260 km<sup>2</sup> of forests, coral reefs and mangroves, until the final creation of a national park. This was an important step on the way to achieving an official conservation status for the area under Malagasy law, but it does

not yet effectively increase the level of protection of the last remaining blue-eyed black lemur habitat. To achieve an effectual protection, a motivated and well-equipped troop of park rangers is needed, a measure which is however already foreseen in the programme of the Malagasy national parks authority ANGAP for the coming years. The future protected area Sahamalaza – Iles Radama is one of a few parks in the process of creation that were selected to be part of the Programme Environnemental 3 (PE 3), a governmental nature conservation programme. The worldbank has made a donation of around 50 million US\$ (the highest amount of money ever given to a country without the obligation to pay it back) to fund this programme, and part of the money will be used for Sahamalaza.

### **Box 2. The Association Européenne pour l'Etude et la Conservation des Lémuriens (AEECL)**

European zoos have been involved in efforts to protect the last remaining habitat of the blue-eyed black lemur on the Sahamalaza Peninsula since the late 1980s, when the zoos of Mulhouse, Cologne and Saarbrücken as well as the University of Strasbourg founded a consortium for lemur research and conservation. This consortium has developed into the Association Européenne pour l'Etude et la Conservation des Lémuriens (AEECL), which today counts 16 member zoos from all over Europe. Together with its American partners, the Wildlife Conservation Society (WCS), and with the Malagasy national parks authority (ANGAP), AEECL has since its creation been working on the implementation of a UNESCO biosphere reserve (created in 2001) and a national protected area on the Sahamalaza Peninsula. During the course of 2004 a field research and conservation station and a scientific working group have been established by scientists of AEECL and the Universities of Antananarivo and Mahajanga in the Ankarafa forest, situated within the UN Biosphere Reserve and proposed national park "Sahamalaza - Iles Radama". Ongoing studies address the ecology of the blue-eyed black lemur and other lemurs living in Sahamalaza. The results will be used to help design effective conservation measures for these critically endangered lemurs. The AEECL member zoos have furthermore initiated captive propagation programmes for the blue-eyed black lemur as well as for other lemur species within the framework of EAZA, that are directly linked to the *in situ* conservation project in Sahamalaza.

During the course of 2004 a field research station (plate 11) and a working group have been established by scientists of AEECL and the Universities of Antananarivo and Mahajanga in the Ankarafa Forest, situated within the UNESCO Biosphere Reserve and proposed APMC (Aire Protégée Marine et Côtière) Sahamalaza – Iles Radama. Ankarafa's forest fragments accommodate one of the largest populations of blue-eyed black lemurs still remaining. The first three long-term research projects, namely on the nutritional ecology, socioecology and parasitic status of *E. m. flavifrons*, have been or are currently being carried out within the framework of AEECL's Programme Sahamalaza. Other species that have been subject to studies and/or census work in Sahamalaza during the last years were *Mirza zaza* and *Lepilemur sahamalazaensis* as well as birds.



**Plate 11.** The AEECL field station in the Ankarafa Forest on the Sahamalaza Peninsula. (© Christoph Schwitzer)

## Studying the blue-eyed black lemur...



**Plate 12.** "Tavy", forest destroyed to make way for agriculture in Sahamalaza. (© Christoph Schwitzer)

cut to make way for rice cultivation (plate 12) or rosewood exploitation. The Malagasy government is well aware of the critical situation of the country's ecosystems, and the Malagasy President, Marc Ravalomanana, has promised to triple the size of Madagascar's protected area network until 2010. Although an increase in the number and size of protected areas constitutes a large step into the right direction, it does not in every case equal an effective protection of an endangered species. It is therefore necessary to establish an individual management programme and action plan for each of the most endangered lemur species, based in each case on studies on the species' ecology and behaviour and on the impacts of habitat degradation on the latter.

### ...and saving it from extinction

There still remain large gaps in the knowledge we have about the blue-eyed black lemur. Together, the zoos united in AEECL are aiming at filling some of these gaps, especially concerning population and social dynamics, habitat utilisation, nutritional ecology, and veterinary issues, to be able to develop comprehensive conservation and management plans for this critically endangered species. The research project will moreover increase public awareness for the forest ecosystem in the target area and will facilitate long-

These studies, as well as the follow-up work that will be carried out during the coming years, aim at generating knowledge that contributes to the improvement of *in situ* and *ex situ* conservation efforts for the blue-eyed black lemur and other lemur species in Sahamalaza. AEECL's Programme Sahamalaza is part of a larger initiative, the "Critically endangered lemurs programme", jointly financed through Conservation International, AEECL and other NGOs, and coordinated by the Malagasy NGO Fanamby. This initiative aims at establishing scientific conservation programmes for the eight most endangered lemur taxa, among them *Eulemur macaco flavifrons*. Madagascar's lemurs are primarily threatened by the destruction and degradation of their natural habitats all over the island. Forests are being

### Box 3. Visiting Sahamalaza - Iles Radama

The Sahamalaza Peninsula in northwestern Madagascar is the best place to see the Critically Endangered blue-eyed black lemur (*Eulemur macaco flavifrons*) and perhaps the northern giant mouse lemur (*Mirza zaza*). It is also the only place to see the newly described Sahamalaza sportive lemur (*Lepilemur sahamalazensis*). The Ankarafa forest in Sahamalaza can be reached by a one-hour boat trip from the town of Analalava to the small village of Marovato and a subsequent two-hour hike inland. Boats as well as local guides can be arranged in Analalava (contact the AEECL office or the Hotel Talio). A local guides association is in the process of being formed. Analalava is no longer served by Air Madagascar, but it is possible to take a plane to the regional capital Antsohihy and continue by bush taxi or (in the rainy season) by ferry. Use of an Antananarivo- or Antsiranana-based tour operator is recommended. The Sahamalaza Peninsula can also be reached by pirogue from Maromandia, which is situated between Antsohihy and Ambanja on the National Road 6. The best time to visit Sahamalaza is between August and October, as these are the coolest and driest months. You need to bring a tent and camping equipment.

term conservation and research efforts for the target species and their habitat.

Other than research and direct conservation measures, AEECL and its American partners from the Wildlife Conservation Society (WCS), with the involvement of representatives of local communities from the Sahamalaza Peninsula and representatives of several environmental institutions, have implemented a community-based natural resource management programme (CBNRM) in December 2000. Two objectives of this programme were identified: to maintain and strengthen natural processes and the condition of terrestrial and marine ecosystems; and to improve natural resource use techniques in order to improve the standard of living of the local human populations. An action plan (Natural Resources Community-Management Plan) was proposed and is currently being implemented. It has since been the reference framework for the AEECL/WCS consortium's interventions in the Sahamalaza region. Twenty-one Local Community Associations (LCA) were set up in four communes as well as several social and professional associations grouping young people, women, farmers, fishers, and craftspeople. An LCA is defined as a village-level association to which the law grants the power to manage natural resources within its territory. These associations will partly take over the management of the natural resources in their communities and engage themselves to manage them in a sustainable way. Thereafter, a local agreement ("dina") on the conservation of the environment was developed and formalized for each of the LCAs that were set up. Moreover, in each village ("fokontany") a Village Forest Protection Committee was set up. The committees work in liaison with the forest department's representative in Analalava to check permits issued by the representative for any logging and to look after the work.

AEECL and WCS help the local associations by providing assistance with bureaucratic procedures as well as through offering courses in e.g. sustainable rice cultivation or the production of handicraft for sale to tourists. As part of the CBNRM for Sahamalaza, in 2005 AEECL/WCS funded a training in irrigated rice farming that was carried out in partnership with the NGO Voahary Salama, specialised in farmers training. From the training benefited 27 people from Sahamalaza. Yields were 13.55 t/ha and 17.14 t/ha, respectively, in pilot rice fields A and B, against 3 t/ha in local rice fields where traditional techniques were used.

To increase awareness of the environment and the need for its conservation, AEECL also participates in the organisation of local festivals such as the "Vitrines de la Sofia" in July 2005 (plate 13) or the "Festival of the blue-eyed black lemur", which took place for the first time in September 2005.



**Plate 13.** The stand of AEECL at the "Vitrines de la Sofia" exhibition in Analalava.  
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