

IIMI and the Bundala National Park

Wim van der Hoek

THE BUNDALA NATIONAL PARK

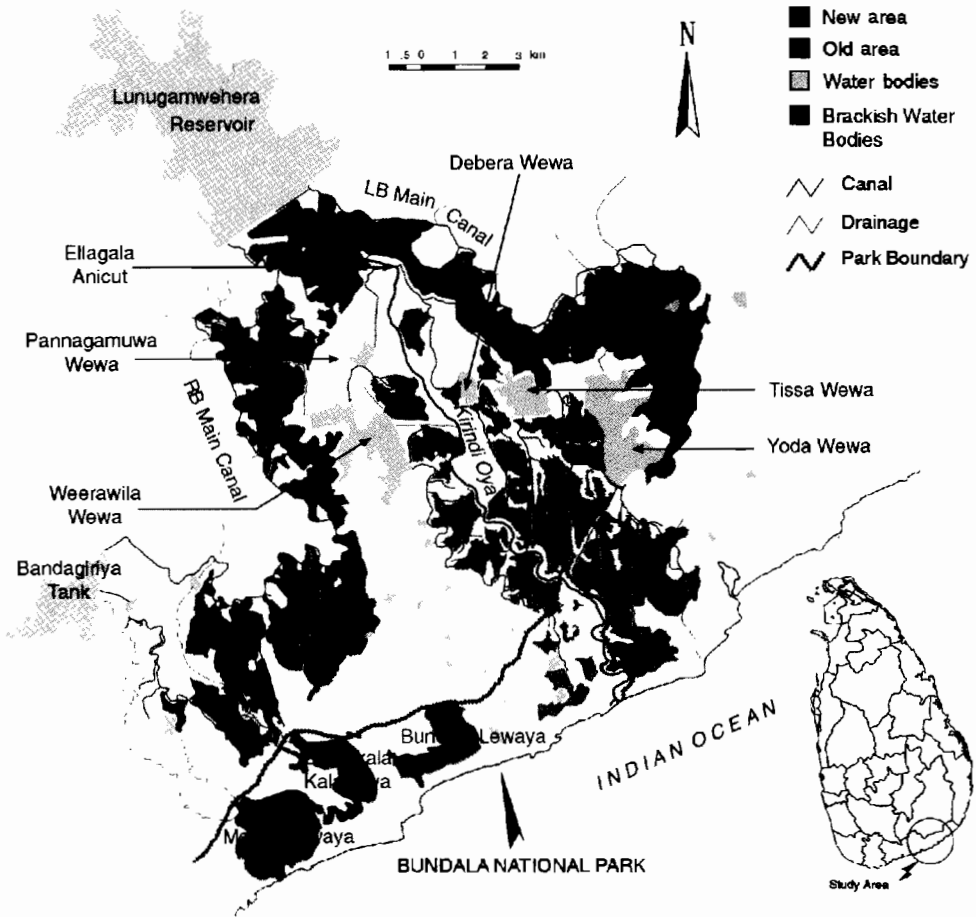
The Bundala National Park is located along the south coast of Sri Lanka in the Hambantota District (figure 1). It covers 6,216 hectares of lowland, including five shallow brackish water lagoons (Maha, Koholankala, Malala, Embilikala, and Bundala) with a total surface area of 2,250 hectares (figure 2). The park has important populations of water birds, elephants, turtles, and other wildlife. The brackish water lagoons serve as nurseries for shrimp, fish, and a variety of other marine organisms. It was declared a sanctuary in 1969 and upgraded to the status of National Park in 1992. The Department of Wildlife Conservation is responsible for overall management of the park. It is the only area in Sri Lanka listed under the International Convention on Wetlands (Ramsar Convention) as a wetland of international importance.

IMPACT OF IRRIGATION ON THE BUNDALA WETLAND ECOSYSTEM

There is an old irrigation scheme in this area, with a number of ancient tanks. After the construction of the large Lunugamwehera reservoir it became possible to irrigate the so-called new areas on the Left Bank and the Right Bank of the Kirindi Oya river. There is a separate irrigation scheme around the Badagiriya tank but with a connection to the Right Bank of the Kirindi Oya scheme.

The new ecosystems of the Malala and Embilikala lagoons have been severely affected by the drainage flow from the Kirindi Oya Irrigation and Settlement Project (KOISP) and the Badagiriya irrigation scheme. The drainage flow from the Badagiriya scheme goes to the Malala lagoon and water from Tracts 5, 6, and 7 of the Right Bank of the KOISP flows to the Embilikala lagoon. After the KOISP was implemented, salinity of the lagoons has dropped due to inflow of upstream irrigation water. This change in salinity levels has influenced the population of water birds as it has affected their food supply. Prawn fishing, which previously sustained several hundred families, has also been affected by this change and it has now almost disappeared from the area. Many other ecological changes have taken place and the two lagoons have now been converted into freshwater lakes. Eutrophication is an emerging problem in the lagoons. Water has a greenish color as a result of accumulation of nutrients and increase in filamentous green algae. The main cause is overgrazing with direct deposit of animal feces in surface water, along with high fertilizer runoff from the irrigated areas.

Figure 1. Study area.

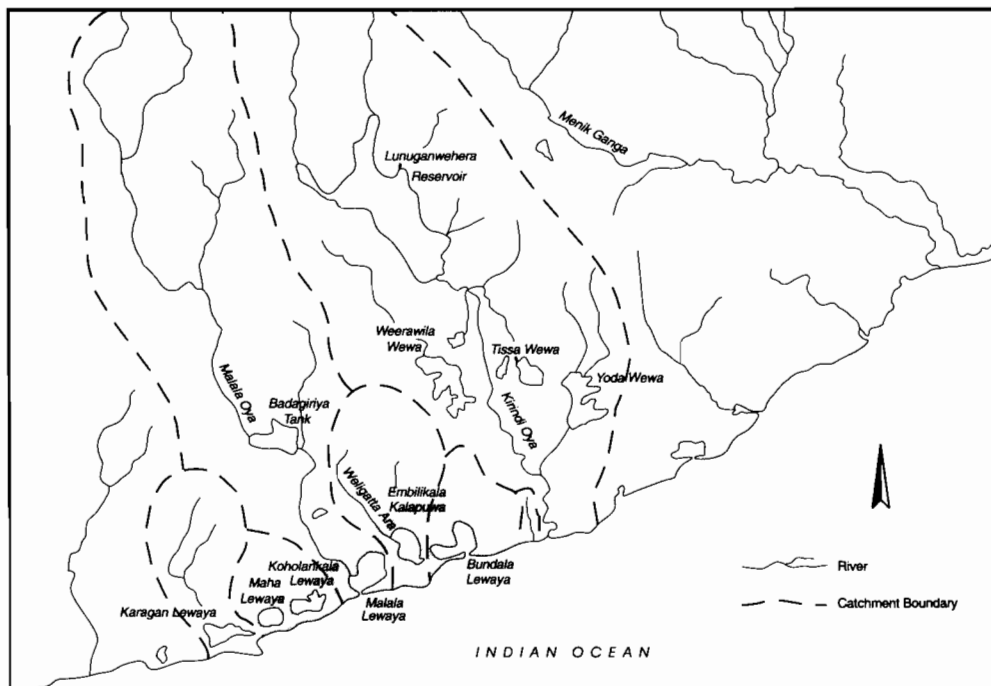


MULTIPLE USES OF WATER

IIMI has been working in the KOISP area for many years. In 1997, the Health and Environment Program started a new project to study the nonagricultural uses of irrigation water (SWIM Paper, forthcoming). This was a reflection of the broad view that IIMI has developed on irrigation within the context of integrated water resources management in river basins. While irrigation projects are designed to provide water for crop production, the water is used for many other purposes. It might be the only drinking water source for cattle; it is used for fishing; and people use water in canals or reservoirs for washing clothes, bathing, or even for drinking. There are also important environmental uses of water in irrigated areas. If we change the availability of water for irrigation it will also affect these unofficial uses.

The aim of the research on multiple uses of water is to ensure that irrigation and water resources policies take into account all uses and users of water, so that water will be used in

Figure 2. Catchment areas associated with the Bundala National Park.



an efficient, equitable, and sustainable manner. That there is so little systematic documentation on the multiple uses of water is partly because every sector has its own objectives. Irrigation systems are designed to provide water for agriculture and rarely take domestic or environmental uses into account.

The environmental functions of water and the impact of irrigation on valuable ecosystems came up as an important issue during the research. IIMI decided to explore possibilities for the development of appropriate water management strategies that could improve and sustain the environment of the park. For the development of such management strategies, a better understanding of the cause-effect relationship between irrigation and the ecology of the lagoons is required. Much work has already been done by various governmental and nongovernmental organizations. The present workshop was planned to assemble as many of the organizations as possible to further define the environmental problems in relation to the water management in the Bundala National Park and to identify research needs.

REFERENCE

Bakker, J. M., R. Barker, R. Meinzen-Dick, and F. Konradsen. (Forthcoming). *Multiple uses of water in irrigation areas: A case study from Sri Lanka.*

Environment in the Bundala National Park

Chandra Jayawardene

The Bundala National Park was declared a sanctuary under the Fauna and Flora Protection Ordinance in 1969 and designated a Ramsar site in 1991. In 1992, the park was upgraded as a National Park under the Fauna and Flora Protection Ordinance.

The total area of the Bundala National Park is 6,216 hectares. The park is located 275 km from Colombo in the Hambantota district in the southern coast of Sri Lanka. The climate is generally hot and dry, with an annual rainfall of 1,074 mm and a mean temperature of 27 °C.

The Bundala National Park has five shallow lagoons: Maha lewaya (260 ha), Kohalankala lewaya (390 ha) the Bundala lewaya (520 ha), Malala kalapuwa (650 ha), and Embilikala kalapuwa (430 ha). The vegetation is dry evergreen scrub with around 48 species of flowering plants.

The breakdown of the fauna in the Bundala National Park could be as follows:

Bird Life: Excellent wintering habitat for 48 species of migratory waterfowl, totaling 149 species.

Mammals: Notable large mammals that could be found are elephant, rusty spotted cat and fishing cat, wild pig, mouse deer, barking deer, and spotted deer.

Reptiles: Estuarine and marsh crocodiles are found in the area and five species of turtles nest in the beaches of the park.

Tourism is the largest income generator to the park. Set out below are details of the number of tourists that visited the park and the income generated (in rupees):

	1996	1997
Foreign tourists	10, 931	17,366
Local tourists	11,367	15,726
Total revenue	421,675	659,700

A conservation program is currently being carried out in the park, which involves the stationing of staff, establishment of a visitor center, and development of a road network. Preparation of a management plan by the Global Environmental Facility for the Bundala National Park is under way.

The biggest threat faced by the Bundala National Park is the drain off from irrigation schemes such as the Kirindi Oya Project. This affects the salinity level of the lagoons that, in turn, influences the population of water birds as it affects their food supply. The drain off

water from the proposed Mau Ara and Malala development schemes into the lagoons in the National Park would further add to this problem. Cattle grazing, shell mining, and poaching to a certain extent are also threats to the Bundala National Park.

Steps need to be taken to maintain the water regime of the lagoons by preventing drain off from irrigation schemes into the water bodies of the Bundala National Park.