

22

The Ecological Society, Pune

PHALTAN NATURE RESTORATION AND CONSERVATION RESERVE

Site: Vinchurni, Phaltan (Survey numbers 24 & 25 of Jadhavwadi)

Area and Tenure: 16H.41R (leased) to Ecological Society by Shri B.V. Nimbkar, Phaltan

NARI

Long term management Plan (2004-2014)

Site Description:

The site is situated at Vinchurni, Phaltan in the semi-arid tracts of Maharashtra. The land is characterized by coarse soil cover (murum) poor in nutrients and humus with low water retention capacity and high mineral content. Due to poor rainfall (average rainfall 250mm) and inappropriate land use, the site was rendered barren and showed signs of degradation and loss of biodiversity. Initial surveys conducted by the Ecological Society (July & August 2001) revealed that the site hosted a diversity of 6 tree species, 7 grass species, 6 species of butterflies and 29 bird species. The Ecological Society recognized the potential of the site for ecological restoration and sustainable management and therefore, initiated the (acquisition and) management of the site.

Management rationale:

The Ecological Society is an active organization in the field of environment conservation and natural resource management since 1982. The society is the first organization to perform and demonstrate ecological restoration in India. The Society has been essentially following an approach that involves undertaking restoration projects that will demonstrate to people the merits of restoration and educate ^{people in} the various techniques involved in the same.

The Ecological Society's rationale behind managing the land at Vinchurni, Phaltan is to restore the natural structure and function of the site whilst preserving and enhancing the local biodiversity. The Ecological Society also aims at educating people towards sustainable natural resources management through the society's educational activities at this site.

Main objectives:

- ❖ Ecological Restoration: involves restoring the natural structure and function of degraded land to benefit people and biodiversity. The Ecological Society will work towards restoring and managing the grasslands and wetlands on a long-term basis. This will primarily involve undertaking soil and water conservation and enhancement methods, re-introduction of native biodiversity and monitoring the progress.
- ❖ Conservation of Biodiversity: Biodiversity is a viable natural resource for local people and its sustainable management ensures stable livelihoods and survival. The Ecological Society's work at Phaltan will aim at recording biodiversity, identifying the threats and undertaking measures to conserve local biodiversity. Therefore this site will also function as a 'reserve of local biodiversity.'
- ❖ Habitat management: The grassland and wetland habitats on the site will be managed in a manner, which will maintain, enhance as well as provide refuge to biodiversity. The habitats may also be managed to cater to certain priority species identified by their rarity and increasing threats. *Monitized e.g.*
- ❖ Sustainable development: expansion of activities beyond the site towards the community and the land adjoining the site. The reserve will be treated as a core zone primarily managed for the restoration and conservation of local biodiversity and natural resources. For the benefit of the community as well as to demonstrate sustainable development our activities will not be confined entirely to the boundaries of the site. The local community will be encouraged to manage their land in a sustainable manner to ensure means for long-term livelihood solutions.
- ❖ Sustainable use: To allow and monitor sustainable use of certain sections of the reserve for the benefit of the local community as well as the biodiversity they depend on.
- ❖ Research: To experiment, implement and demonstrate ecological techniques to conserve soil, water and local biodiversity

- ❖ Education: To develop and expand the Ecological Society's educational activities and field based training programmes. A wider audience for the educational activities will be targeted from the local community to government officers. The establishment of a field station at Phaltan will provide support to these programmes.

Main prescriptions and projects:

1. Habitat management: To manage the habitats along the lines of the site management rationale and objectives assigned to it by the Ecological Society. The project site supports varying types of grassland habitats, scrubland, seasonal wetlands and a range of dry and semi-arid microhabitats hosting a number of species suited to these conditions. The management measures to be undertaken as a part of this management plan are broadly described here:

- ❖ Grassland management: Currently the site supports 2 types of grasslands viz. open, unprotected and extensively grazed grasslands and protected grasslands fenced to prevent grazing and human disturbance. In the next year the Ecological Society proposes to enclose another section of the site by fencing the area. Different management measures will be implemented within this newly fenced area allowing sustainable use of the land mainly by allowing rotational grazing. The effects of this land use will be monitored on a regular basis. Therefore, as a part of this proposed management regime (2004-2014), the Phaltan project site will be classified into 3 distinct sections: 1) Fenced and protected area 2) Open area with no restriction over human access and cattle grazing 3) Fenced area allowing restricted and monitored human access and cattle grazing.
- ❖ Wetland management: The 'Phaltan Restoration and Conservation Reserve' hosts 3 seasonal wetlands referred to as Upper Bhavani (11,700 sq.m) Lower Bhavani (4320 sq.m) and the Farmpond (900 sq.m) which fill up during the monsoon and retain water for 6 to 9 months. This management plan proposes specific management works for each of these wetlands which provide important habitats for locally rare flora and fauna.

Upper Bhavani: Due to poor vegetative cover and inappropriate land management in the adjoining farmlands, soil erosion occurs causing siltation in this wetland habitat. The Ecological Society plans to remove excess silt from the Upper Bhavani wetland during the dry season ~~therefore~~^{by} deepening it and increasing its capacity to retain water. Other procedures will include: To protect the wetland from further siltation by constructing bunds, stone riffles and increasing vegetative cover at places where water flows into the Upper Bhavani. Soil conservation techniques will be demonstrated to the neighboring farmers and implementation of the procedures will be discussed.

Lower Bhavani: is a smaller wetland as compared to Upper Bhavani and retains water until December once filled during the monsoon months (see progress report 2003). Management prescriptions within this plan will include 1) installation of bunds at the inlet and outlet of this wetland to reduce overflow and to maximize retention of surface water run-off during the monsoon. 2) Creation of islands and bank-side refuge sites to encourage nesting of birds. Protection of such sites from predation and human disturbance will also be required. 3) Re-introduction of wetland flora and fauna will be considered or even experimented with, although extensive monitoring and research will be a prerequisite. (Please note: prescriptions listed here will also be implemented at all the 3 wetlands on the reserve)

Farmpond recently created and the smallest wetland on the site measuring approximately 900 sq.m in area. Due to heavy rainfall in June 2004, the bunds constructed at the outlet of this wetland were damaged. Repair of these bunds will be a priority as well as provisions for overflow. Nests of the Spot-Billed Duck (*Anas poecilorhyncha*) were observed on the banks of this habitat (July 2004). Measures to encourage nesting activity will be taken as described earlier.

- ❖ Seasonally wet and marshy habitats: The project site supports small areas which show characters of marshy habitats hosting algae, amphibians, insects and introduced marshy plant species. Although small in size such habitats contribute to the diversity of the reserve as well as function as ecotones between the dry and the wet habitats on the site. Protection and enhancement of these habitats along with the re-introduction of rare and native ^{floral} species will be the primary management procedures for these habitats.

- ❖ Scrub and savanna: Pockets of areas exhibiting a character of scrub and savanna are present on this site. Although a 'true savanna' is typical to tall grasses and sparse tree cover, the fenced section of the reserve does support tall grasses protected from grazing and disturbance. Tree cover is limited, most of them being planted specimens. Exotic trees are present and procedures are planned to keep this under check and if required removed. Plantation of native tree species has been undertaken to some extent. Further plantation is planned although the character of grassland will be maintained. On the other hand, ^sscrublands are quite a common sight especially in the semi-arid region of Maharashtra. The area under scrub will be monitored and expansion kept under check. Priority towards conserving and managing rare habitats and species will be given, whilst encompassing local biodiversity as a whole.

- ❖ Microhabitats (creation and management): The 'Phaltan Restoration Reserve' hosts a number of microhabitats unique to dry and arid areas, some of which include: rocky outcrops, soil mounds, bushy thickets, seasonal pools and puddles etc. Such habitats support a diversity of reptiles, amphibians, invertebrates and micro-flora and fauna. The Ecological Society through its educational programmes highlight the importance of protecting such areas. This plan proposes to create and expand the number of diverse microhabitats on the site to support a higher diversity and larger populations of species dependant ^{on} of these habitats.

2. Protection and conservation: The Ecological Society plans to execute differing regimes of management, protection and use on the site at Phaltan. In terms of management, the Society will be considering the reserve as a 'core zone' within which restoration, conservation and enhancement of biodiversity will be undertaken through sustainable land management. Beyond this area, the Society will be involved in demonstrating the merits of sustainable land management to neighboring landowners, farmers and the local community. The Ecological Society believes that sustainable development is crucial for better quality of life and it can only be achieved through education and co-operation. Therefore, to fulfill this objective, the Ecological Society, in the next 10 years, will be involved in managing the site at Phaltan as well as working beyond the borders of the reserve for the benefit of the local community and local biodiversity.

In terms of protection and use, the Ecological Society plans to classify the site into 3 sections under different regimes of protection. As mentioned earlier, the fenced area will be protected from human use and disturbance entirely, a separate section has been identified where sustainable use of the land will be allowed and monitored. The remaining area will be left open although damage to the land and disturbance to ecological function will be kept under check. Such areas under differing levels of protection and management will allow us to demonstrate the effectiveness of conservation and restoration to the community at large.

3. Research: The Ecological Society is involved in practical and applicable research with regard to restoration and sustainable natural resource management. The organization will be continuing its research activities with the help of its staff and students at Phaltan. The Society's research interests specific to Phaltan are:

- ❖ To study and demonstrate sustainable land management in an arid region
- ❖ To study and conduct long-term monitoring on grassland restoration
- ❖ To experiment with ecological techniques to conserve soil, water and biodiversity
- ❖ To study ecological functions and their importance to humans with reference to the site at Phaltan

- ❖ To study and map the connectivity of the food chain and its importance to people
- ❖ To study the ecological role of some economically important native and exotic species.
- ❖ To study and provide alternative livelihoods based on local biodiversity
- ❖ To conduct research on vegetation management and its implications for soil and water conservation

4. Education: The Ecological Society has been conducting training and educational programmes since its inception in 1982. The society has been successfully conducting a post-graduate diploma in natural resources management since 1994. With over 150 students graduating from this course in the last 6 years, the Ecological Society aims to expand and develop its educational activities in the coming years. The Society's educational programmes are unique due to their field based components and practical demonstrations. The Society has regularly conducted a module of the post-graduate diploma at the Phaltan reserve to cover aspects of grassland restoration and management. The students are encouraged to undertake fieldwork at the site. The Society aims to develop its field based training programmes by attracting a wider target group be it from urban or rural localities. To do so, the Ecological Society plans to develop a field station at Phaltan in order to support the organization's growing educational and research activities.

5. Restoration: The Society has been conducting restoration works at Phaltan since 2001. The objective of the restoration project at Phaltan is to restore and re-create some of the rare and declining habitats of the region. The Ecological Society's restoration objectives with respect to ~~the~~ Phaltan is to restore natural structure and function of the site whilst conserving local biodiversity and educating people. The restoration works at the site will continue throughout the period of this management plan. The progress will be monitored on a long-term basis to provide reference to similar projects elsewhere in India. Abiotic conditions on the site will be restored so as to host the maximum amount of local biodiversity. Re-introductions of native species will be undertaken and monitored.

6. Local Community: To illustrate sustainable development, it will be crucial to involve as well as to co-operate with the local community. The Ecological Society's management and research activities will certainly benefit the local community directly or indirectly. Support from the local community will facilitate implementation of restoration works, protection of the site as well as its long-term management. The Ecological Society's work within the plan with respect to the local community will include:

- ❖ Site visits, awareness and demonstration workshops for farmers and others to educate them about the importance of sustainable land management
- ❖ To demonstrate and train local people in ecological techniques of soil and water conservation methods to support the management of their lands
- ❖ To educate the communities to value and conserve their local biodiversity
- ❖ To study and promote alternative means of sustainable livelihoods with respect to the local biodiversity

Work Programme and priority listing: 2004-2014

Year	Work Programme	Priority (1-3) (1-least priority 3-highest priority)
2004-2009 (First 5 year Plan)	Ecological Restoration	3
2004-2009 (First 5 year Plan)	Conservation of Biodiversity	3
2004-2009 (First 5 year Plan)	Habitat Management	3
2004-2009 (First 5 year Plan)	Sustainable Development	2
2004-2009 (First 5 year Plan)	Sustainable Use	3
2004-2009 (First 5 year Plan)	Research	2
2004-2009 (First 5 year Plan)	Education	3

2010-2014 (Second 5 year Plan)	Ecological Restoration	2
2010-2014 (Second 5 year Plan)	Conservation of Biodiversity	3
2010-2014 (Second 5 year Plan)	Habitat Management	3
2010-2014 (Second 5 year Plan)	Sustainable Development	3
2010-2014 (Second 5 year Plan)	Sustainable Use	3
2010-2014 (Second 5 year Plan)	Research	2
2010-2014 (Second 5 year Plan)	Education	3