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Open Landscape Maintenance Management on Former Military Training Areas

The Case Study of the Döberitzer Heathland

Former military training areas accommodate valuable biotopes in open landscapes, which will be lost in the foreseeable future, if passive cultivation of free succession is allowed. Therefore, a research project examined various management concepts, which could contribute to preserving open landscapes. In this article respective management scenarios are presented for the former military training area Döberitzer Heide near Berlin, with their economic consequences.

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Keywords

Military training areas, scenarios, nature conservation, procedures for maintaining open landscape

Active management measures are necessary in order to prevent an overgrow of the exceptionally valuable open landscape biotopes on former military training areas as an outcome of free succession. The procedures and technical basics for maintaining open landscape were presented and discussed in Landtechnik 3/2002 (p. 150-151). The following analysis does not focus on procedures but on the level of the former military training area itself from a point of view of a potential manager of the area. Therefore, the question has to be posed, with which nature conservation conceptions reasonable open landscape management could be implemented. Specific difficulties are the very complex and differing starting conditions of former military training areas. Particularly the load with military residues and hence the differing necessity for their removal, depending on the procedures used, constitute a cost intensive factor. In the following a case study of different maintenance scenarios is described and the expected economic effects are discussed .

Objectives

Objective of the overall study is to identify the different possible maintenance measures on the level of military training areas, to outline their possible use and to estimate the future impact from an ecological, economical and social point of view. The presented article discusses parts of the economic results considering the case of the former military training area Döberitzer Heathland.

Material und methods

The scenario method was used for the research. The scenario method is an interdisciplinary method, with which diverse, coherent, development possibilities are analysed. It is not a model of prognosis but an estimation of possible future developments. In the scenarios in general, the decisive impact factors such as biotic, abiotic, social, technical, political and cultural factors are determined. The specific value of scenarios lies in the possibility to estimate the spectrum of the future development of very complex, multifactor influenced interrelationships under uncertainty [1]. Therefore, they are particularly suited for interdisciplinary questions.

For the definition of scenarios it is in general differentiated between explorative scenarios, which are based on an extrapolation of the status quo, and contrast scenarios, which are oriented at desirable final states or at final states which should be avoided. For the contrast scenarios it has to be paid attention, that they differ in essential assumptions, however, they have to be coherent in themselves. The result is a so called scenario funnel (*Fig. 1*), which shows the spectrum of possible development and allows statements about the feasibility of different approaches. The net present value (NPV) method was used for the long term analysis of economic effects of the single regarded scenarios. For discounting an interest rate of 3% was used and the period under consideration was fixed to ten years.

Results and discussion

The former military training area Döberitzer Heathland

The former military training area Döberitzer Heathland comprises ~ 4,700 ha and is located in the west of Berlin. The area was used predominantly for military purposes for almost 300 years [3]. It was subrogated to the state Brandenburg after the retreat of the Russian army. The open biotopes comprise an area of 771 ha, out of which 675 ha are suited for an active management under an economic point of view. The most important open biotopes include sand and grey hair grass areas, dry lawn, Calluna heathlands as well as ruderal fields. Measures to preserve open landscapes were already conducted in the last years.

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The following interdisciplinary scenarios were developed in the frame of the overall project: At first the continuation of the Present-procedure is examined. Here it concerns the use of domestic animals, to ensure keeping the landscape open. In this case well

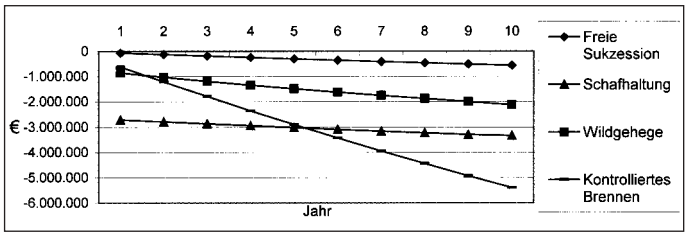

Fig. 1: Capital values for development scenarios of the Döberitzer Heathland taking into account the costs of the removal of military residuals

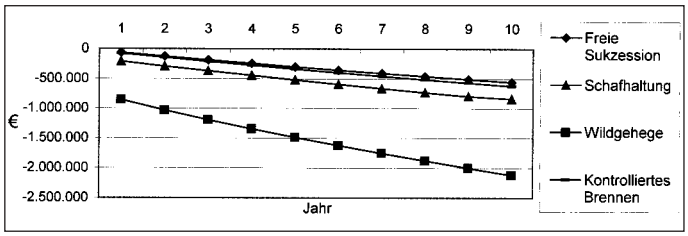

Fig. 2: Capital values for development scenarios of the Döberitzer Heathland without taking into account the costs of the removal of military residuals

adapted sheep (*Ovis ammon (aries) f. aries*) are used. As a first contrast scenario the development of the biotopes under a non-management of the open landscapes in form of a total free succession is researched. In further contrast scenarios the impact of game grazing and prescribed burning on keeping the landscape open is analysed.

Scenario grazing with sheep
For the grazing, 500 ewes are used. In order to conduct the sheep husbandry securely the resistance to trampling has to be realised which requires a surface removal of military residuals. Such a measure generates one time costs of about 2.5 Mio € at the beginning of the management, assuming an average load of military residuals. In addition, investments of about 127,100 € are needed for the installation of sheep husbandry itself. The annual management costs including running overhead costs amount to 85,600 €, which face the receipts of only 12,400 € taken in as award of shooting rights. The net present value for a ten year period adds up to -3,208,000 €.

Scenario Free Succession
An extreme scenario, which is in opposite to the active management of open landscapes is the acceptance of Free Succession. Here any preservation activity of the open landscape management is given up which leads to a reduction of the open landscape areas. Under these conditions, costs for administration, contributions and security arise which opposite receipts by awarding shooting rights. A removal of the military loads could be foregone. The annual deficit would be about -63,400 €/a and the net present value reaches 557,300 € for the ten year period.

Scenario Grazing by Game
Grazing by game presents an innovative, dynamic approach to preserve open biotopes. The share of open landscape shall be kept constant in the long run by grazing activities. It is accepted, that this will be the case on changing sub-areas. To establish this procedure it is necessary to built an appropriate enclosure, paths as well as drinking and feeding places and to purchase the game. Extensive removal measures of military residuals are not needed in this scenario besides for the fence line and paths. If the hitherto open landscapes shall be approximately preserved, in the case of the former military training area of Döberitzer Heathland the installation of an appropriate enclosure requires investments of about 764,300 €. Assuming an average flow of visitors of 50,000 per year, which generate income by paying entrance fees, this form of active management is leading to an annual deficit of about 150,000 €. The net present value for a period of ten years adds up to about -2,100,000 €.

Scenario Prescribed Burning
Prescribed burning can serve to create a manifold mosaic of different succession stages [2]. To be able to maintain open landscapes by the use of prescribed burning the same area has to be burned once in about ten years. This means that in the Döberitzer Heathland 67.5 ha have to be burnt annually. This is done in single patches of two hectares scattered randomly over the area. Investments for prescribed burning are very low with 4,100 €. Also for this procedure the extensive overhead costs have to be considered (see above), to which the management costs have to be added. Therefore, an annual deficit of about 70,000 € occurs. Furthermore, for areas loaded with military residuals the costs for removal have to be included, because the arising temperature from prescribed burning leads to an intensification of the danger associated with ammunition left in the soil [4]. Since a surface removal is not sufficient, the emerging one time removal costs are very high with about 5,434,000 € and are distributed equally over the ten years of the assumed period. The net present value adds to -5.396.000 € in ten years.

Outlook

As the analyses shows, the advantages of single procedures depend to a high degree on the necessity for the removal of military residuals. If there are no such costs, open landscape management by prescribed burning is possible to little increased costs compared to free succession. The procedures sheep husbandry and grazing by game are not competitive in such spacious areas. The presented results are used for an overall assessment of open landscape management. This is done in an interdisciplinary research group, which involves environmental, economic and social criteria for the assessment.

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