

ASSESSMENT OF THE USE VALUES OF THE SEČOVLJE SALINA NATURE PARK
(SLOVENIA)

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ABSTRACT

The establishment of the Protected Area and its management structure in the area of Sečovlje Salina (SW Slovenia) contributed both to economic development and to more effective biodiversity conservation. Provision of infrastructure and the introduction of programmes for visitors led to an increase in the number of visitors and corresponding income for the management of the park. Restoration of the traditional salt-making process resulted in the viable economic sustainability of the company to which the Republic of Slovenia delegated management of the Protected Area and offered the possibility for sustainable use of the natural resources within the area. From 2002 (when the park saw the introduction of active management and the re-emergence of traditional salt-making) to 2010, the employment increase index amounted to 421, while the visitors index grew to 360. What has to be highlighted is the fact that at the same time the park also witnessed growth in the population of endangered indicator bird species, an important biodiversity element whose conservation was the principal reason for the establishment of the protected area.

Key words: protected areas, Nature Park, sustainable tourism, economic valuation, salt-making, biodiversity conservation

Valutazione dell'uso dei valori del PARCO NATURALE delle Saline di Sicciole (SLOVENIA)

SINTESI

L'istituzione dell'Area Protetta e la struttura della gestione dell'area delle Saline di Sicciole (Slovenia sud-occidentale) hanno contribuito sia allo sviluppo economico che ad una più efficace tutela della biodiversità. La presenza di infrastrutture e l'introduzione di programmi per i visitatori hanno portato all'aumento del numero di visitatori e dei redditi correlati, fondi poi usati per la gestione del parco. La rivalorizzazione del processo di produzione tradizionale del sale ha inoltre portato alla sostenibilità economica della società alla quale la Repubblica di Slovenia ha delegato la gestione dell'Area Protetta, gestione che offre la possibilità di un uso sostenibile delle risorse naturali all'interno del bacino. Dal 2002 (quando nel parco è stata avviata una gestione attiva ed è stata riattivata la produzione tradizionale del sale) al 2010, l'indice d'incremento dell'occupazione è stato pari a 421, mentre l'indice del numero di visitatori è cresciuto fino a 360. Ciò che è inoltre da rilevare è che, allo stesso tempo, nel parco si è verificata una crescita delle popolazioni delle specie indicatrici minacciate dell'avifauna, elemento importante della biodiversità, la cui tutela è l'obiettivo principale dell'istituzione dell'area protetta.

Parole chiave: aree protette, Parco Naturale, turismo sostenibile, valutazione economica, produzione del sale, tutela della biodiversità

INTRODUCTION

The recognition of the socio-economic benefits of the protected areas is mostly based on the ecosystem services of the area (Millennium Ecosystem Assessment, 2005). Ecosystem services is the name given to the resources which nature supplies to humans; for example, biodiversity provides us with food, wood, textiles, fuel, medicines and clean water and also offers direct economic benefits for humans beings, such as earnings from tourism development (Secretariat of the Convention on Biological Diversity, 2008).

Protected areas are driving forces of economic development only insofar as the basic aim of their establishment, that is biodiversity conservation, is considered as the primary management goal and is not jeopardized by other activities in the protected area (Dudley & Stolton, 2008).

The concept of the evaluation of economic benefits of protected areas is based on the determination of the use values of goods and the values of non-use (Phillips, 1998; Slabe-Erker, 2005), with the latter usually being prevalent in protected areas. The use value may be indirect or direct. The direct use value of the protected area is the value of its constituent elements (e.g. wood, crops and plants, as well as autochthonous agricultural plants, breeds of domesticated animals, etc.); whereas the indirect use value, which is derived from protected areas with valuable natural features and biodiversity, is the ecological value that supports the functioning of society and the economy (e.g. various phenomena such as nutrient/oxygen/water cycling, carbon sink, protection against erosion, as well as educational, cultural, aesthetic, spiritual, recreational and other values, etc.; Slabe-Erker, 2005). The non-use values are option values (intangible and independent of use and non-use, and derived from the preservation of the area for future generations) and existence values, and are based on the premise that species and ecosystems exist by themselves and are rooted in human culture (Slabe-Erker, 2005).

The direct use value of a protected area is derived from activities such as recreation, tourism, natural resource harvesting, gene pool services, education, research, etc.

The aim of this paper is to evaluate the direct economic benefits of the establishment and effective management of the Sečovlje Salina Protected Area and to demonstrate that these benefits have not negatively affected the biodiversity values of the area.

DESCRIPTION OF THE AREA AND ITS MANAGEMENT

Covering a surface area of 6.5 km², the Sečovlje Salina is situated in the southwesternmost part of Slovenia, along the border with Croatia (Fig. 1). It is one of the few salt-pans in the Mediterranean where salt is still pro-



Fig. 1: Geographical position of the Sečovlje Salina Nature Park (SSNP).

Sl.1: Geografski položaj Krajinkega parka Sečovlj-ske soline (KPSS).

duced according to the several-centuries-old traditional method. The park features tangible remains of medieval and slightly modernised types of salt-pans.

Being home to a number of rare and endangered salt-loving species and habitat types, the Sečovlje Salina is of great national and international importance, a fact which is also reflected in its protected status as assigned on the basis of Slovene (ZON, 2004; Berginc *et al.*, 2006) and European legal regulations and international conventions in the field of nature conservation (the Park has been declared a nature park of national importance, a Natura 2000 area, and a Ramsar wetland of international importance).

Sečovlje Salina has also been designated as being of extraordinary importance for its ethnological, technological, historical and architectural heritage and landscape, both at and beyond the national level. It is the convergence of its outstanding natural features and biodiversity with its salt-making tradition and cultural landscape that bestows upon it a special value in terms of nature and culture protection, making it an attractive tourist destination (Fig. 2).

The Sečovlje Salina Nature Park (hereinafter: SSNP) is managed by the company "SOLINE Pridelava soli d.o.o." (Soline d.o.o.). The concession agreement between the Republic of Slovenia and the company, delegated management of this Protected Area to the company together with the rights to utilise valuable natural features of Sečovlje Salina and to produce salt in a traditional manner. The concessionaire owns no real estate in the park. The real estate (land, dykes, salt-pans, buildings, etc.) is almost entirely owned by the Republic of Slovenia, with minor owners being the Municipality of Piran and a few private land-owners. There are no human settlements in the park.



Fig. 2: Aerial photo of the area. (Photo: SSNP Archives)

Sl. 2: Letalski posnetek obravnavanega območja. (Foto: arhiv KPSS)

Having gained the concession rights to manage the nature park and to produce salt, the company developed a new business vision based on the sustainable use of valuable natural resources and on the production of traditional, entirely natural Piran salt, as well as on active management of the nature park.

Within the park are several walking and cycling paths with a total length of 9.1 km (Fig. 3); a renovated building housing a large information centre for visitors, a miniature model of the salt-pans and a projection hall; small information points at the two land entrances to the park and in the gallery, which houses an exhibition area and a souvenir shop; a lookout platform, a demonstration salt pond for visitors, a café, toilets for visitors, a parking area in front of the entrance to the park, and several information boards. The park also boasts a salt-making museum. The entrance fee covers a visit to the park and the museum. The park can be visited individually and in groups. Group visits are always guided by the park's professional staff.

METHODS

An analysis of two indicators of the direct economic benefits brought about by the establishment and management of the protected area was undertaken measuring:

- the increase in the number of visitors and, consequently, the income generated through entrance fees, and
- the increase in direct employment generated by the traditional and environment-friendly use of natural resources (salt-making) and the active management of the protected area.

The increase in visitation was analysed on the basis of the number of tickets sold. There are two entrances to the park from the land, and tickets may be purchased at both. Visitors visiting the park by boat (organised tours only) also buy tickets. Entrance to and use of the Paren-

Karta 11: Obiskovanje parka 2010 - 2011

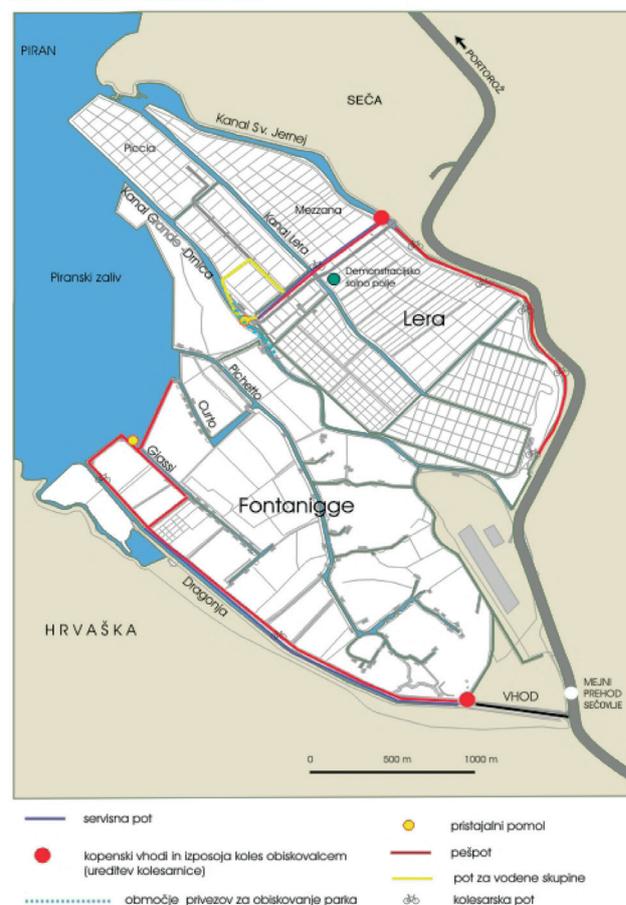


Fig. 3: Walking paths in the Sečovlje Salina Nature Park. (Source: SSNP Archives)

Sl. 3: Poti za obiskovalce v Krajinskem parku Sečovljejske soline. (Vir: arhiv KPSS)

Legenda/Legend: servisna pot = service road; kopenski vhodi in izposoja koles obiskovalcem (ureditev kolesarnice) = entrances by land and bicycle rental facilities (bicycle shed); območje privezov za obiskovanje parka = mooring area for visitors accessing the park by sea; pristajalni pomol = landing pier; pešpot = footpath; pot za vodene skupine = guided walking tour; kolesarska pot = cycle route.

zana Path of Health and Friendship that crosses the park is free of charge.

The increase in direct employment is evident from employment data (as of 31 December each year) kept by the Soline Company since 2002.

Regular monitoring of bird species is carried out as a part of the management activities in the park. Detailed monitoring of breeding and trends among some indicator bird species started soon after the establishment of the park and its managerial structure. The detailed monitoring methods are described by Škornik (2012).

RESULTS AND DISCUSSION

Increase in the number of visitors to the park

The development of sustainable tourism in the Protected Areas has been presented in several studies (*i.e.* FNNPE, 2001; EUROPARC, 2012). Sustainable tourism development is a subject of analyses in the wider SSNP area (*e.g.* Jurinčič, 2009; Jurinčič & Popič, 2009), as well as for the site with which we are presently concerned (Trampuš, 2002). The number of visitors to the SSNP has been increasing owing to diverse infrastructure (walking and cycling paths, signs, information boards, visitor centre, etc.) and a variety of programmes offered to visitors and tourists (guided tours, "team-building", yoga and Pilates, workshops, events, exhibitions, etc.). As a result, the park has witnessed an increase in self-generated income, which is subsequently earmarked for park management, and especially for setting up and maintaining infrastructure. The number of visitors and annual visitation trends for the SSNP are shown in Table 1.

We see that the number of visitors is 3.6 times greater than it was when active management of the park was first undertaken. The table and the diagram do not include users of the Parenzana Path of Health and Friendship as they are exempt from paying the entrance fee.

The above-mentioned self-generated income, together with individual donations and international funding through projects in which the park administration is involved either as a project partner or leader, account for approximately 75% of the financial resources necessary for the park's management, meaning that the founder of the Protected Area (the Republic of Slovenia) provides only approximately one quarter of the total funds.

Direct employment increase in the park

After WWII, traditionally produced salt, which used to be the engine of the regional economy, became an uncompetitive commodity in the European and local markets owing to the invasion of salt produced at low cost along the African coast and in European salt mines. This period witnessed the decline of several dozen traditional salt-pans in the northern Mediterranean. Sečovlje Salina saw the abolition of salt-making at Fontanigge (the southern part of the park) in 1967, while salt-making at Lera (its northern part) was mostly stagnating until the new owner, the "Soline d.o.o." Company, took it over in 2002. The dykes were poorly maintained, the salt-pans were mostly abandoned, and the buildings, designated as architectural heritage, were mostly severely dilapidated, with some of them even being in complete ruins. At

Tab. 1: Total number of visitors and their monthly distribution between 2002 and 2010. Source: SSNP Archives. Tab. 1: Skupno število obiskovalcev in njihova razporeditev po mesecih med letoma 2002 in 2010. Vir: arhiv KPSS.

Month	Year								
	2002	2003	2004	2005	2006	2007	2008	2009	2010
January				542	410	526	406	794	580
February				878	766	853	802	681	654
March				1,286	1,211	1,579	1,509	1,094	1,142
April				1,711	2,125	2,770	1,568	2,370	4,377
May				1,692	4,529	4,617	3,726	4,682	3,373
June				1,310	6,209	4,789	2,789	3,806	4,365
July				1,714	1,993	2,927	1,846	2,422	2,309
August				2,367	2,791	2,177	1,957	1,693	3,107
September				2,084	4,674	4,064	3,007	4,585	4,266
October				1,706	3,990	4,709	2,405	4,097	3,050
November				1,236	2,373	1,450	1,180	1,224	1,030
December				454	351	917	264	653	590
TOTAL	8,000*	20,000*	25,000*	16,980	31,422	31,378	21,459	28,101	28,843

* The number of visitors in 2002, 2003 and 2004 is based on estimations. In other years, it is based on the number of sold entrance tickets.



Fig. 4: Two lines of products launched by the Sečovlje Salina Nature Park. (Source: SSNP Archives)
Sl. 4: Blagovni znamki in proizvodi iz Krajinskega parka Sečovlje soline. (Vir: arhiv KPSS)

that time, the company employed only a few salt workers still skilled in the unique traditional salt-making technique based on the cultivation of *petola* (a special biosediment) and daily salt harvesting in summer months. The experienced salt workers believed that, owing to poor maintenance of the salt-making infrastructure, it would take only a year or two for the sea to break down the dykes and flood the salt-pans.

The Soline Company decided to resurrect the traditional salt-making procedure in order to promote conditions favourable to biodiversity and diverse habitat types, and thus find a niche market. With this in mind it renovated more than twenty-five salt ponds, a number of dykes totalling several dozen kilometres in length, more than ten structures with the architectural heritage designation, the most important infrastructure (including the sewage system, which had to be built from scratch) and several smaller structures and machines. The company launched two lines of products related to traditionally harvested salt and salt-making by-products, both of which managed to penetrate the Slovene and foreign markets, and opened six of its own stores in different locations in Slovenia (Fig. 4).

Table 2 shows the increase in the number of employees of the company that manages the park and which was granted a license to produce salt in the SSNP. Data refer to the years 2002–2010. In 2010, 21 positions were occupied by staff in charge of park management, while the rest were taken by people in salt-making, water management, maintenance, administration and marketing. Indirect employment (seasonal and contract workers) has not been evaluated yet, even if it certainly ranks high, exceeding the number of full-time employees several times over (during the salt harvesting season, the number of seasonal workers alone amounts to several dozen).

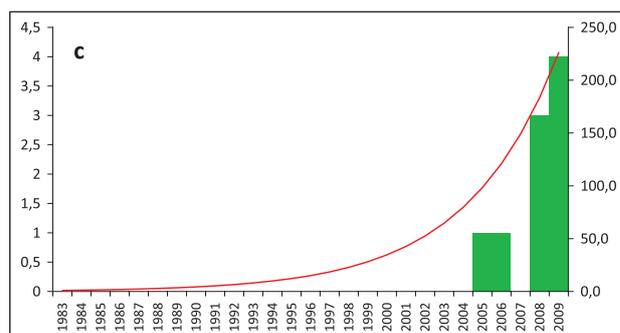
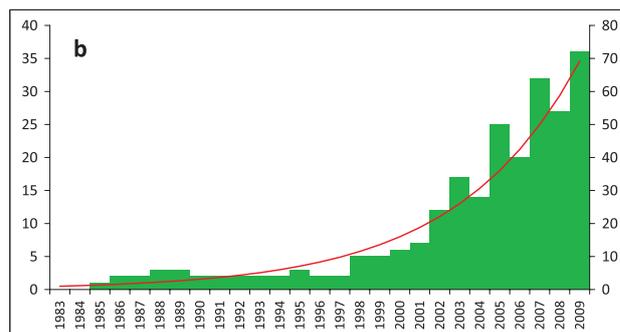
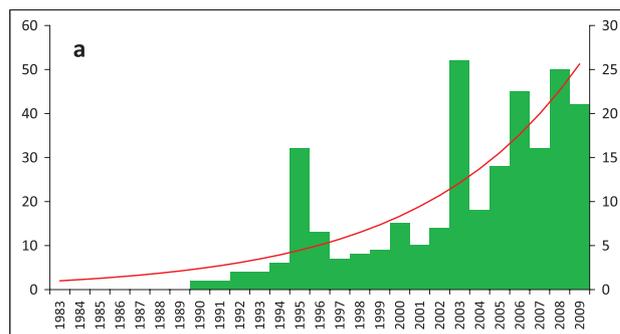


Fig. 5: Trends among indicator bird species in Sečovlje Salina, 1983-2009: a) black-winged stilt; b) little tern; c) avocet) and the increase in the number of its nesting pairs. Legend: bars = no. of nesting pairs, red line = trend (modified after Škornik, 2012).
Sl. 5: Trendi značilnih vrst ptic Sečovljejskih solin v obdobju 1983–2009. a) polojnik; b) mala čigra; c) sabljarka. Legenda: stolpiči = število gnezdečih parov, črta = trend (prirejeno po Škornik, 2012).

The employment increase index in the SSNP amounted to 421 in recent years, making the company, responsible as it is for the management of the park and the sustainable use of the natural resource within it, one of the most important job providers in the wider local area.

Tab. 2: Increase in the number of employees of the Soline Company between 2002 and 2010. Source: SSNP Archives**Tab. 2: Rast števila zaposlenih v podjetju Soline med letoma 2002 in 2010. Vir: arhiv KPSS.**

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
No. employees as of 31 Dec	19	35	44	48	48	47	52	57	80

Changes in the number of indicator nesting bird species

Despite the revival of the traditional salt-making technique and the increased number of visitors to the park, the number and distribution of selected indicator birds species nesting in the salt-pans (Fig. 5) has been increasing as a result of the implementation of the protective regime, management interventions, and the concept of conation, according to which visits and salt-making are limited to specially designated areas. The increase has also resulted from the strict protection of zones of invaluable natural importance where a special water regime, adapted to the local flora and fauna and habitats, was implemented. The population of typical saline nesting birds such as the Black-winged Stilt and Little Tern has grown by almost 500 and 300 per cent respectively in the observation period from 2002 (the start of effective management of the park) until 2009.

Since the introduction of active management, several new nesting species have also been observed (such as the avocet, Fig. 5c).

This period also witnessed a considerable increase in the number of all birds observed in the park (Fig. 6). The efforts to conserve biodiversity are also reflected in the increase in the amount of time spent by SSNP employees on monitoring selected natural factors in the park.

CONCLUSIONS

Having been established in order to conserve nature, protected areas are among the most important aspects of ecosystem services that humanity needs in order to survive. In Slovene protected areas, the value of such services has not been determined as yet. The case study of the SSNP evaluated the direct socio-economic benefits of the protected area: the increase in the amount of direct employment in the company managing the protected area and in the number of employees involved in the traditional use of natural resources (salt-making process), and the increase in ticket sales.

From 2002 (when the park saw the introduction of active management and the revival of traditional salt-making) to 2010, the employment increase index in the SSNP was 421, while the visitation index rose to 360. Of

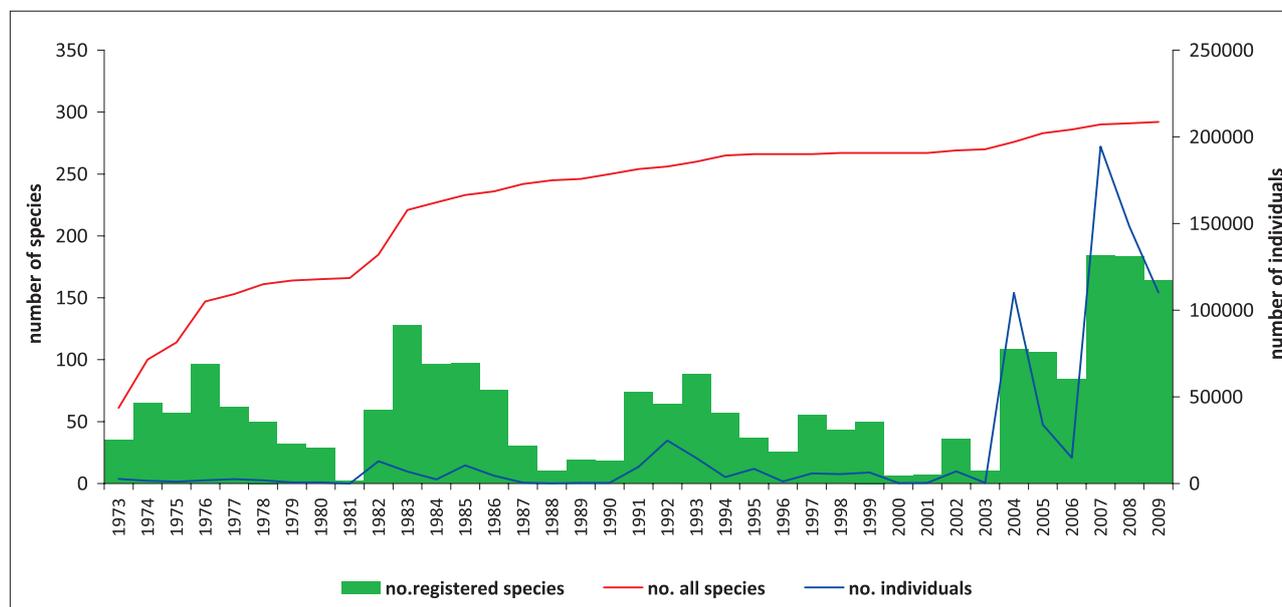


Fig. 6: Number of observed species and specimens per year and increase in the number of all observed species in the Sečovlje Salina Nature Park, 1973–2009 (modified after Škornik, 2012).

Sl. 6: Število evidentiranih vrst in osebkov po letih ter naraščanje števila vseh opazovanih vrst v obdobju 1973–2009 v Krajskem parku Sečoveljske solin (prirejeno po Škornik, 2012).

particular significance is the fact that at the same time the park also witnessed growth in the population of endangered indicator bird species, an important biodiversity element whose conservation is the primary purpose of the protected area.

Moreover, local residents benefit from the higher quality of life resulting from the ecological services within the protected area, such as favourable microclimate, low levels of noise and pollution, opportunities for spiritual relaxation and passive recreation, and better knowledge of the area's biodiversity. Direct benefits are also derived from services offered to park visitors

(e.g. restaurants and accommodation outside the park, direct employment in the park, indirect employment in the forms of delivery of services in natural science education, security, transport, maintenance, sale of local products produced in the park, etc.). The continuation of traditional salt-making, which has helped to shape the area and preserve its ecological character and landscape, enables local residents to live in harmony with the protected area and gives them the opportunity to participate in the seven-hundred-year-old salt-making procedure.

OVREDNOTENJE UPORABNE VREDNOSTI ZAVAROVANEGA OBMOČJA SEČOVELJSKE SOLINE

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POVZETEK

Ustanovitev zavarovanega območja in upravljanje s Krajskim parkom Sečoveljske soline sta prispevala k ekonomskemu razvoju in bolj učinkovitemu varstvu biotske raznovrstnosti. Ureditve in vzdrževanje infrastrukture za obiskovanje parka in ponudba programov za obiskovalce parka so posledično prispevali k povečanju števila obiskovalcev parka, ki s plačilom vstopnine prispevajo sredstva za upravljanje parka. Obnova tradicionalnega postopka pridelave soli je prispevala k trajnostni rabi naravnih virov in povečanju prihodkov za podjetje, ki mu je država prek koncesijske pogodbe zaupala upravljanje z državnim zavarovanim območjem in omogočila izkoriščanje naravnih virov. Od leta 2002, ko se je pričelo z aktivnim upravljanjem s parkom in obnovo tradicionalnega postopka pridelave soli, do leta 2010 se je indeks števila zaposlenih povišal na 421, indeks števila obiskovalcev parka pa na 360. Posebej pomembno je, da se ob tem še vedno povečujejo populacije ogroženih indikatorskih ptic gnezdk, ki so pokazatelj ugodnega ekološkega stanja za doseganje osnovnega cilja ustanovitve zavarovanega območja, to je ohranitve biotske raznovrstnosti območja.

Ključne besede: zavarovana območja, krajski park, trajnostni turizem, ekonomsko ovrednotenje, solinarstvo, ohranjanje biodiverzitete

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