



REPORT

ADRIA

2017

Protected Area Benefit Assessment Tool (PA-BAT) in Serbia

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Who we are

WWF is one of the world's leading non-governmental and non-profit organizations for nature conservation. WWF's mission is to stop the degradation of our planet's natural environment, and to build a future in which people live in harmony with nature. WWF was established in 1961, and has representative offices in over 100 countries across the globe. The organization is proud to have over five million people who support it.

WWF Adria's aim is to contribute to conservation, better governance and sustainable management of protected areas, marine and freshwater ecosystems, and forests as well supporting a broadened involvement of stakeholders (including civil society organizations or CSOs) in natural resource management and sustainable development in the Adria–Dinaric region.



What we want to achieve

Sustainable use of natural capital forms a basis for social and economic development and is safeguarded through enhanced environmental responsibility among the public, governments, CSOs, and the business sector.

How this document contributes to our goal

WWF brings to the region a wide range of the best international and regional practices that can be locally applied according to in-depth knowledge and experience of conditions and needs in Serbia.



Why you need to read this document

This analysis identifies main drivers relevant for both protected areas and the country's development policies; identifies the flow of economic benefits and the need to develop strategies to give revenue back to local people and protected areas; the importance of jobs in protected areas – which is vital for rural economies and relevant for politicians. This report is contributing to the Strategic Plan for Biodiversity 2011-2020, and demonstrating the values of protected areas in the region and provides examples of good practice to help achieve the Aichi Biodiversity target number 1¹: by 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

¹ More information can be found at <https://www.cbd.int/sp/targets/>

Introduction

The vision of WWF is that proper evaluation of protected areas leads to greater interest, more investments, and better preservation of natural values. Evaluation of the ecosystem services that protected areas provide is of long-term importance to the local and national economy. It takes years of work mapping values and engaging key decision makers to ultimately change policies and develop economic models that include natural values in development plans. WWF is presenting analysis that can provide initial information on how various stakeholders perceive the current and potential value of protected areas, which can assist Serbia to integrate natural capital and ecosystem services into development planning.

The results are based on discussions in six assessed protected areas (PAs) with more than 150 stakeholders including; local people, PA managers, government officials, experts, business representatives, NGO representatives and others.

The coverage of protected areas Serbia is relatively low, representing 6.7% of the national territory². The PA-BAT assessment was done in four national parks (NPs Tara, Đerdap, Fruška Gora, Kopaonik), one protected landscape (PL Vlasina), and in one special nature reserve (SNR Gornje Podunavlje). Public institutions manage all six PAs. The national parks are managed by public enterprises, SNR Gornje Podunavlje is managed by public enterprise Vojvodinašume, and PL Vlasina is managed by a local public company for construction and road infrastructure. The assessed PAs cover around 160 000 ha, which is approximately 35% of the total protected areas in Serbia.

Ecosystem services are relatively new concept in Serbia which has only started to be considered among environmental experts and policy makers. Some studies and assessments with focus on PAs have been done but further research and concept development is needed.

CURRENT PAs
COVER AROUND
6,7 PERCENT
OF THE NATIONAL
TERRITORY

²Data provided by the Institute for Nature Conservation of Serbia

Methodology

The PA-BAT methodology³ is an important tool used to identify a full range of current and potential benefits of individual PAs, as well as protected area management challenges. The PA-BAT is primarily designed to be used by protected area managers working with stakeholders to identify important values, and the benefits those values bring to a range of stakeholders.

Steps in implementing the PA-BAT:

1. Nomination of the PA-BAT coordinators in each protected area and basic PA data collection,
2. Site-based participatory workshops (datasheets, detailed notes, stakeholder survey),
3. Data validation (post-workshop),
4. Data analysis (site-based, national and international level),
5. Production of guidance notes - how to apply the results,
6. Implementation of recommendations.

Using this methodology, workshop participants assess economic and non-economic/subsistence values in terms of their benefits to a range of stakeholders. The tool uses a list of 22 values that are characteristic for protected areas. Values are organized around nine main groups: nature conservation, protected area management, food, water, culture, health and recreation, knowledge, environmental services, and materials.



Values were scored on a six-point scale: no benefit; minor or major non-economic/subsistence benefit; minor or major economic benefit; and potential economic benefit.

³ More information can be found at http://croatia.panda.org/en/what_we_do/protected_areas/pa4np/pa_bat_methodology/ and www.natureforpeople.org

PA values were assessed for eight stakeholder groups:

- Local people living in the protected area,
- Local people living near the protected area,
- National population,
- Scientist/experts,
- Civil society organizations,
- Government (local, national, PA management),
- Business sector,
- Global community.

The analysis combines the workshop stakeholder assessments, mainly local informants, with information collected from protected area managers and experts through a data validation process. We also received valuable input from a workshop participant survey carried out after each workshop. Guidance notes⁴ were developed to support park management in utilizing the PA-BAT findings.

The PA-BAT results can be used at both national and site level to improve management and to develop appropriate policies that support nature conservation while promoting sustainable development and the wise use of natural resources.



Lake Perucac / National Park Tara © NP Tara

Results



Overall results show that stakeholders recognize a wide range of PA values and benefits. All of the 22 offered values have been recognized by at least one stakeholder group.

The most recognized values are tourism and recreation, natural values and biodiversity, cultural and historical values, water quality and quantity, wood/forestry, and wild food plants and mushrooms. These six values combined are 48 percent of the total number of answers given by all stakeholder groups.

Tourism is one of the economic activities that is most easily linked with PAs by local stakeholders. PAs and their natural and cultural values are attractive tourist destinations that support local economies in a variety of ways.

⁴ More information can be found at http://croatia.panda.org/en/what_we_do/protected_areas/pa4np/pa_bat_methodology/

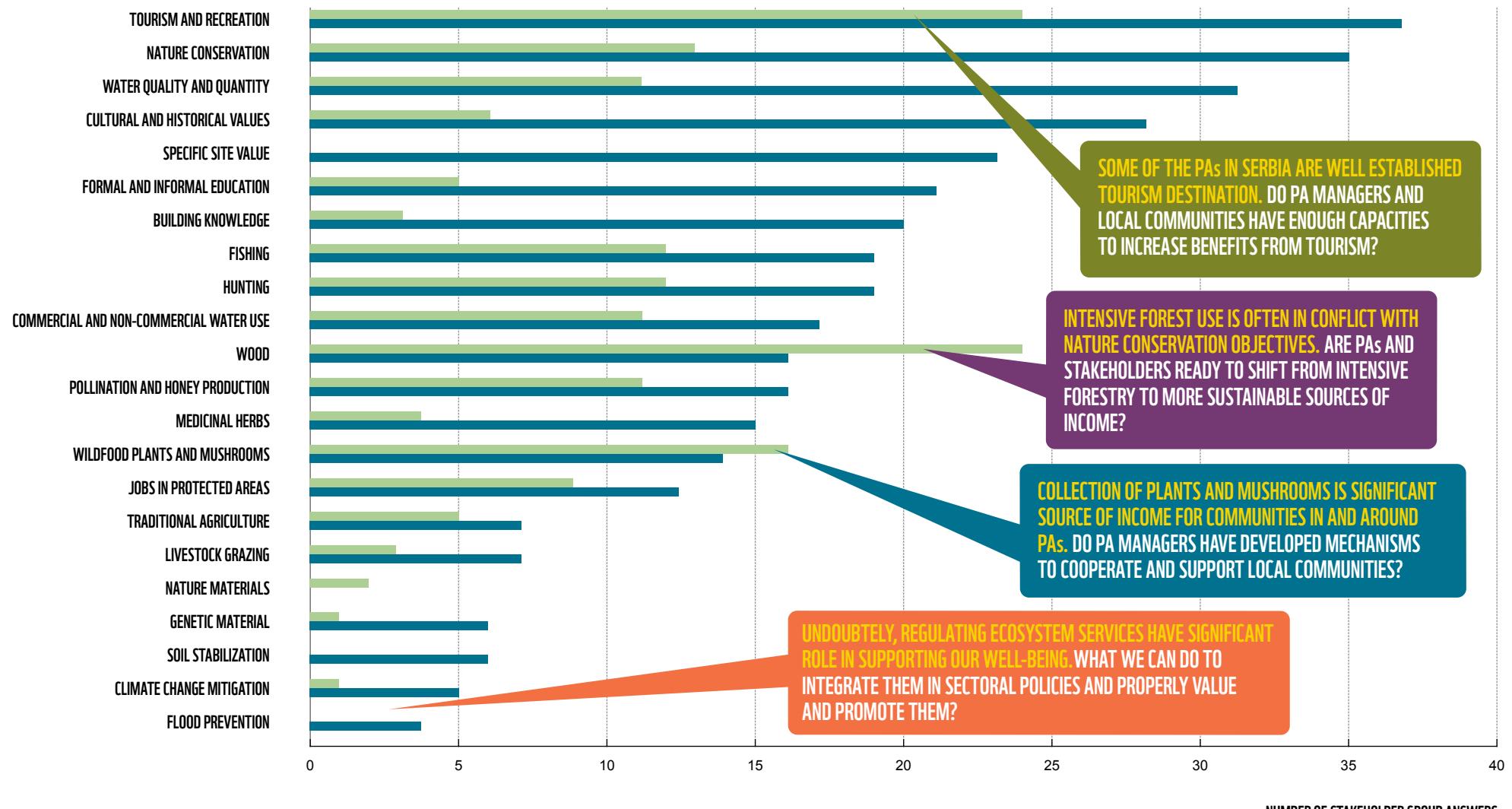


Figure 1. Comparison of economic and non-economic values and benefits of six PAs in Serbia assessed by eight different stakeholder groups⁵

⁵ More information can be found at https://natureforpeople.org/protected_areas/

Conservation of natural values, one of the primary functions of PAs, is well recognized among stakeholders in Serbia. This shows that in general there is a high level of support by stakeholders for PA, and that management, at least in these six areas, fulfils the primary objectives of PAs.

Water resources, both in their quality and quantity, are highly dependent on preserved natural ecosystems. This is well recognized, especially among communities living in rural areas that have permanent and direct interactions with nature and its processes. The relatively high ranking of PA values related to water resources (water quality and quantity, and commercial and non-commercial water use) in assessed areas depicts this interdependence of people, water, and preserved ecosystems.

Cultural and historical values are closely linked with PAs and sacral objects (monasteries) in Serbia. Many PAs have rich cultural history, and many cultural objects and monuments are within their borders. Most of the PAs have been inhabited throughout history, although nowadays a depopulation process is evident in many of them. The cultural heritage of the areas is recognized not only because of the tourism development potentials it brings, but also because of its intrinsic value for local people.

The current management regimes in most PAs in Serbia allow for **wood extraction**. In fact PA managers in assessed areas, except Vlasina protected landscape, highly depend on forestry activities, which generate the largest part of their budget. There is a long tradition of wood extraction and use in those areas and it is not surprising that many stakeholders recognize wood production as one of the main values of a PA. Local people use wood for subsistence (mainly firewood), but they also sell timber. Other values linked with provisioning ecosystem services like **hunting, fishing, wild food plants and mushrooms, medicinal herbs, and honey production** were also well recognized in the assessments.

Of particular interest and relevance for PA management is that participants in the assessments recognized the importance of PAs for **education and knowledge building**. These values are well positioned in the upper half of the list of all values. Social values and benefits are often underestimated and neglected in PA planning and management. These results show that PA regulators should be encouraged to aim at more integrative PA management concepts.



WATER RESOURCES ARE AMONG TOP RATED VALUES IN PAs IN SERBIA



Lake Brulje / National Park Fruška gora © Dragiša Šavić



The relevance of **PA as job providers** is not emphasized much in the assessment. However, since the PAs are mostly situated in remote rural areas where local communities don't have many employment opportunities, the potential of PAs to provide jobs should not be neglected. Stakeholders considered only direct employment in PA management, and not other jobs based on or related to PA and its values (i.e. jobs in tourism or sale of natural and local products).

Agriculture production in PAs is not recognized as a relevant value, a relatively small number of stakeholders currently seen benefits from it. Presumably this is not specific to PAs, but rather reflects the general, unfavourable situation in the agricultural sector in Serbia. Rural and mountain areas, where most of the assessed PAs are situated, are especially affected by negative trends in agricultural production as well as depopulation. New approaches in PA management should consider **traditional and sustainable agriculture** as an important tool for conservation of habitats and species (i.e. grazing as a tool for the management of mountain pastures). Obviously, such management practices are still not adequately developed in Serbia.



The least recognized values are mostly those linked to regulating and supporting services: **climate change mitigation, soil stabilization, and flood mitigation**. Public awareness of these important ecosystem services is generally low. Ecosystem services are a relatively new concept and it will take some time to be accepted and properly valued among local people. However, specific local knowledge about erosion, floods, drought, and landslides exists but it is not considered in the wider context of ecosystems and climate change.

Economic values of Serbian PAs

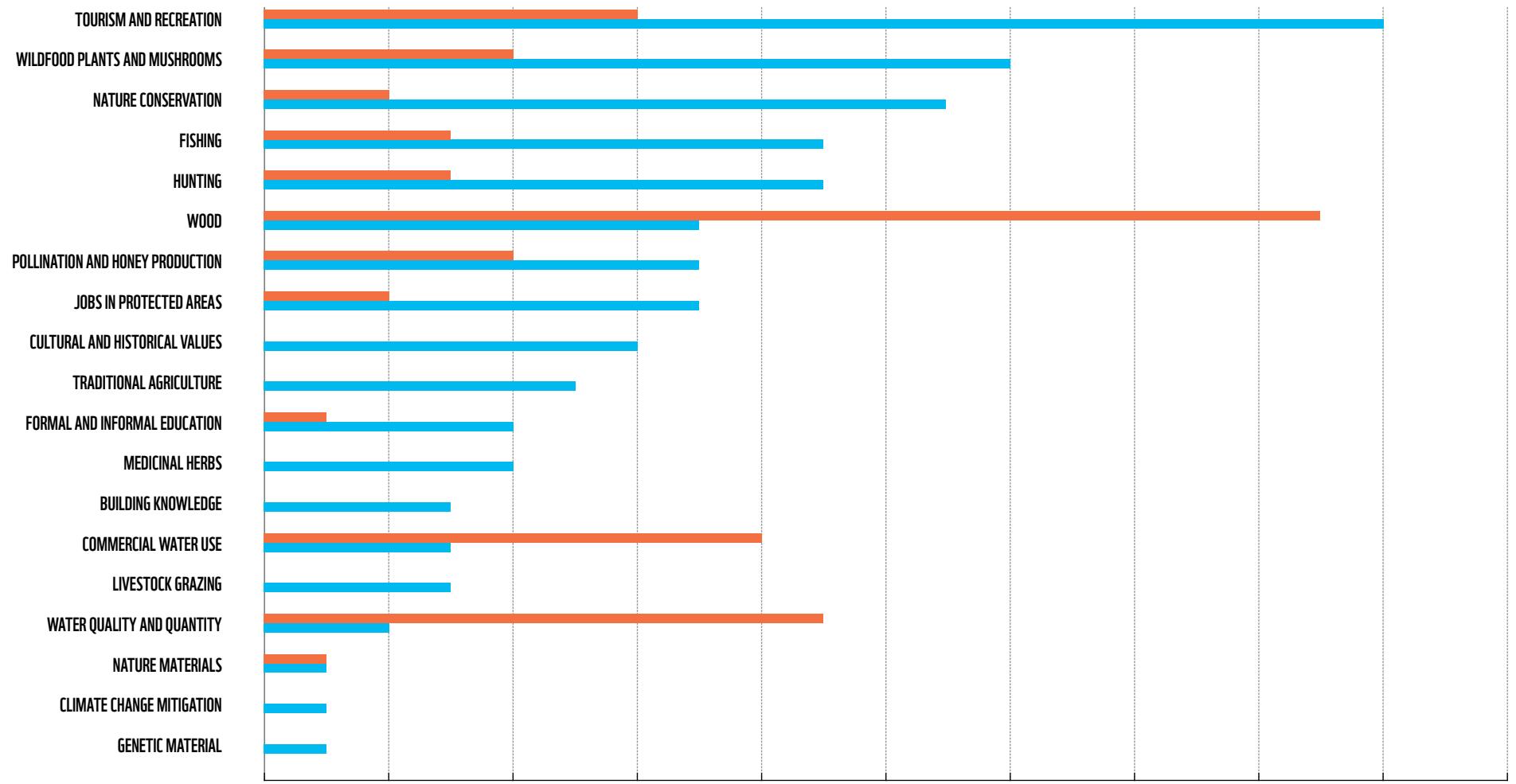


Figure 2. List of economic values and the comparison between major and minor economic values of the six assessed protected areas⁶

LEGEND

Major economic value Minor economic value

NUMBER OF ANSWERS PER STAKEHOLDER GROUP

⁶ More information can be found at https://natureforpeople.org/protected_areas/

Forestry

A major source of funding in national parks (NPs) and many other protected areas is forestry (wood extraction). The annual income from wood extraction within all PAs in Serbia is estimated at over 8 million USD⁷. The management of NP Tara is heavily dependant on wood extraction with approximately 80 percent of the budget coming from forestry and associated activities. It is similar in other national parks and PAs managed by forestry companies (i.e. special nature reserve Gornje Podunavlje).

The regulation of forestry activities in PAs in Serbia is very flexible. Cutting is prohibited only in areas under strict protection (zones with 1st level protection regimes). Those zones however usually make up a very low percentage of the total protected area. In zones with a 2nd level protection regime logging is restricted to sanitary cuttings and other activities aimed at the improvement of forests. In practice, this often means intense wood extraction, very close to the level of regular extraction in non-protected forest areas. Zones with a 3rd level protection regime have are managed almost the same as non-protected areas. Selection cutting is fully allowed, which is the common forestry practice in Serbia.

Figure 3. Overview of zoning patterns in six assessed PAs

Protected Area	Total Area/ha	Zones with 1 st level protection regimes/ %	Zones with 2 nd level protection regimes/ %	Zones with 3 rd level protection regimes/ %
NP Tara	24.99	13	34	53
NP Đerdap	63.786	8	21	71
NP Kopaonik	11.969	12	30	58
NP Fruška Gora	26.672	3	67	30
SNR GornjePodunavlje	19.648	1	25	74
PL Vlasina	12.741	<0.1	34	65

⁷ Guidelines for Protected Area Financing: http://www.rs.undp.org/content-serbia/sr/home/library/environment_energy/vodi_za-finansiranje-zatienih-podruja.html



**ANNUAL INCOME
FROM FORESTRY IN
SERBIAN PAs IS OVER
8 MILL.USD**

**FOREST COMPANIES
AND PUBLIC ENTER-
PRISES FOR NATIONAL
PARKS MANAGE THE
LARGEST PORTION
OF PAs IN SERBIA,
OVERSEEING OVER
75 PERCENT
OF THE TOTAL PAs
IN SERBIA**

Such a regulatory framework enables wood extraction to be a core economic activity in the management of many PAs. The PAs that have substantial forest coverage, and are at the same time the largest, are managed by state forest companies: Public enterprise Srbijašume and Public enterprise Vojvodinašume. National parks in Serbia are managed by specific state enterprises but these are, in their structure and management practice, very similar to state forestry companies. Forest companies and public enterprises for national parks manage the largest portion of PAs in Serbia, overseeing over 75 percent of the total PAs in Serbia. Of the assessed PAs, only Vlasina is not managed by a company that has forestry as its core business.

The high significance of forestry for PA management was as well reflected in the assessment workshops. Stakeholders in all assessed PAs recognized wood/forestry as having significant economic and subsistence value. Due to a long tradition of forestry in protected areas and the organizational framework of PA management, forestry is recognized as a main economic benefit by most of the stakeholder groups. Wood, as natural value, is best recognized by local people living in and around PAs (50 percent of all answers). They are followed by government representatives and the business sector (approximately 30 percent of all answers), while the national population and civil associations are groups which didn't recognize wood as having significant value (less than 10 percent of all answers).



The organizational structures of PAs reflects the current management regime which focuses on forestry. Public enterprises that are managing national parks have a relatively large number of employees (about 180 in NP Tara, about 150 in NP Fruška Gora, and about 80 in NP Đerdap). Most of the employees are engaged in forestry activities, from cutting and primary processing (forest workers), to planning and management (forest engineers). For example, the Department for Protection, Enhancement and Sustainable Development in NP Đerdap has 12 employees, while the Department for Forest Planning and Management has 37 employees⁸.

⁸ Sistematizacija of jobs in NP Đerdap: http://www.npdjerdap.org/novi/wp-content/uploads/2017/02/sistematizacija_rm_k.pdf

The total value of wood in NP Tara is estimated at 190 million €. The average annual volume of harvested wood in the park is approximately 65.000 cubic meters⁹ which is about 2 percent of the total volume of harvested wood in Serbia¹⁰.

Undoubtedly, forestry and its associated services currently has a major role in the PA-related economy in Serbia. However, a comprehensive and critical analysis of the economics of forestry in PAs has never been done. In practice managers rely on traditional approaches, and external costs (such as environmental and social costs) are mostly neglected. No alternative business practices are considered. The wider public, as evidenced by this assessment, however consider the current forestry practices as compromising the PA concept in general. It is clear that such an approach is not consistent with modern PA concepts based on integrative management and on enabling diverse PA potentials.

Therefore, additional in-depth analyses and structured discussions are needed to find appropriate transitional paths for Serbian PAs focused on wood extraction.

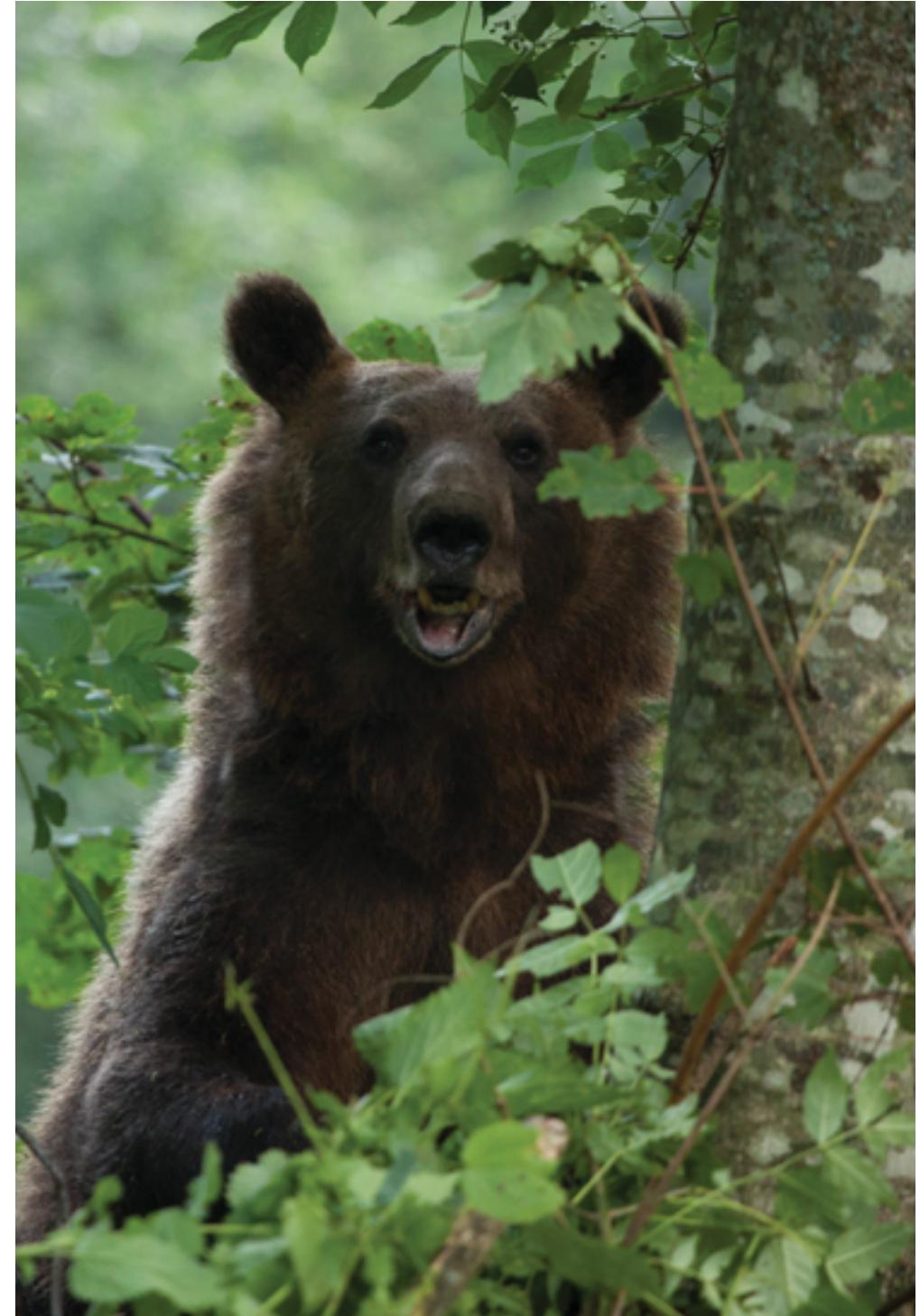
Forest certification is one such mechanism that can help in the conservation and sustainable management of forest ecosystems. The Forest Stewardship Council (FSC) is a global certification scheme, and the only one currently present in Serbia. To date, all state forests managed by Public enterprises Srbijašume and Vojvodinašume have been certified per the FSC process. State forests managed by other companies, including forests in national parks, and private forests are not certified.

FORESTRY AND ITS ASSOCIATED SERVICES CURRENTLY HAS A MAJOR ROLE IN THE PA-RELATED ECONOMY IN SERBIA



⁹ Forest Management Plan of NP Tara <http://www.nptara.rs/images/download/2016/Plan%20upravljanja%20sumama.pdf>

¹⁰ Data from Statistical Bureau of the Republic of Serbia



Tourism

Tourism in Serbia is in a transitional stage. In last ten years the number of tourist visits has increased by 22 percent, and the share of foreign tourist visits has increased from 29 percent in 2005 to 46 percent in 2016¹¹. Despite these positive trends in recent years, the situation in the tourism sector is still unfavourable. Tourism products and services are not adequately developed and accommodation capacities are low and outdated. The recent growth is mainly a consequence of the opening of the country to foreign tourism after the political transition in 2000, as well as comparative advantages (cultural and natural heritage, and relatively good connections), but not because of strategic development or investments.

The direct contribution of the tourism sector to Serbia's GDP in 2016 was 2.3 percent, while total contribution was 6.7 percent¹².

Natural landscapes, high biodiversity, and rich natural resources are recognized as one of the strengths for tourism in Serbia. Many of the key tourism destinations are protected areas: Kopaonik, Tara, Đerdap, and Stara planina. However, a comprehensive understanding of PA potentials and management specifics is missing. Instead, incentives for the development of intensive tourism and infrastructure in PAs still prevails in government policies. For example, Kopaonik mountain has been intensively developed for years as ski centre, despite the fact that it has been a national park since 1981 and is one of the country's biodiversity hotspots with an area of large and preserved forest ecosystems. As a result, NP Kopaonik now has around 5 400 beds and 490 000 overnight stays annually. Such intensive tourism is not based on natural values, but mainly on ski tourism. PA managers and local stakeholders are also not properly involved in the planning and implementation processes related to ski tourism.



IN LAST TEN YEARS
THE NUMBER OF
TOURIST VISITS
HAS INCREASED BY
22 PERCENT
IN SERBIA



LOCAL PEOPLE
LIVING IN PAs
ARE NOT WELL
INTEGRATED
IN TOURISM
ACTIVITIES

Tourism offers in PAs based on presenting natural and cultural values are still underdeveloped. The organizational structures of PAs and the capacities of their managers are not yet adequately adjusted for the effective development of sustainable tourism. Consequently, the numbers of visits to PAs are very low compared to other tourist destinations. For example, NP Đerdap had only 2.054 registered visits in 2016¹³. The situation is slightly better in NP Tara, which has developed basic capacities for tourism activities and is systematically working on further development in this field. In 2016, NP Tara had 18.271 registered visits in the visitors centres¹⁴. The number of tourist that are actually visiting the PA is much larger, but the PA management does not have evidence and control of all the visits, mainly due to a lack of capacity and limited visitor management systems. According to estimates, annually about 150.000-200.000 people visit the park. Official statistic however recorded 63.741 tourist arrivals to Tara in 2016, and a gradual increase over the last ten years (there were 48.000 tourist arrivals in 2006).

The PA-BAT assessment shows that stakeholders in all six PAs recognize non-economic or subsistence value from tourism in their PAs. In NP Kopaonik, NP Tara and Protected Landscape Vlasina stakeholders claimed that tourism in PAs represents a major economic value for them.

All the stakeholder groups almost equally recognized the values connected with tourism and recreation. Governments, businesses and the national population have slightly better recognition of these values (15 percent of all answers), while the locals living in PAs have less (8 percent of all answers). This result shows that local people living in PAs are not well integrated in tourism activities.

¹¹ Data from the Statistical Bureau of the Republic of Serbia - <http://www.stat.gov.rs/WebSite/public/ReportView.aspx>

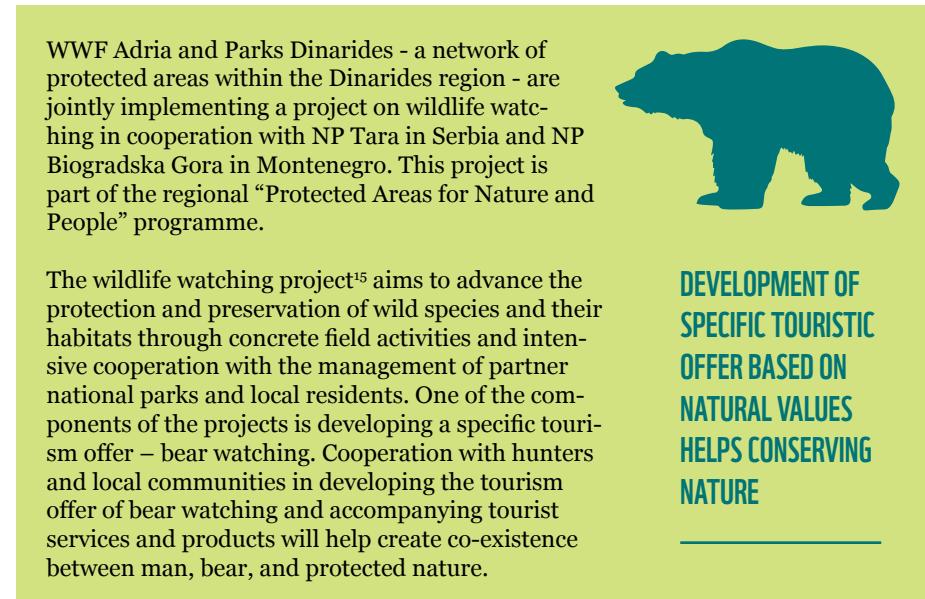
¹² WTTC Travel and Tourism Economic Impact 2017 in Serbia: <https://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2017/serbia2017.pdf>

¹³ Bulletin of Information of NP Đerdap: http://www.npdjerdap.org/wp-content/uploads/2017/06/informator_jun_2017.pdf

¹⁴ Bulletin of Information of NP Tara: <http://www.nptara.rs/images/download/informator%20np%20tara%20februar17.pdf>

A good example however of integration of local people into tourism is Bački Monoštor, a village located right next to the special nature reserve Gornje Podunavlje. The community is well organized and offers local accommodation, local products and crafts, and all activities are offered through local enterprises. In addition, two well visited and popular festivals are organized there every year (Bodrog fest and Danube Regeneration).

If not properly planned and managed however, tourism can become a serious threat to nature conservation. Therefore, the impact of tourism on the values of PAs should be carefully monitored. One suitable mechanism for sustainable tourism management in PAs is the European Charter for Sustainable Tourism (ECST) developed and supported by the EUROPARC Federation. NP Fruška Gora and SNR Gornje Podunavlje are already participating in this Charter.



WWF Adria and Parks Dinarides - a network of protected areas within the Dinarides region - are jointly implementing a project on wildlife watching in cooperation with NP Tara in Serbia and NP Biogradska Gora in Montenegro. This project is part of the regional "Protected Areas for Nature and People" programme.

The wildlife watching project¹⁵ aims to advance the protection and preservation of wild species and their habitats through concrete field activities and intensive cooperation with the management of partner national parks and local residents. One of the components of the projects is developing a specific tourism offer – bear watching. Cooperation with hunters and local communities in developing the tourism offer of bear watching and accompanying tourist services and products will help create co-existence between man, bear, and protected nature.

**DEVELOPMENT OF
SPECIFIC TOURISTIC
OFFER BASED ON
NATURAL VALUES
HELPS CONSERVING
NATURE**

¹⁵ More information can be found at https://natureforpeople.org/wwf_examples/tara_bear_watching/



Water

Renewable internal freshwater resources per capita in Serbia are estimated at 1170 m³. This is significantly lower than most of the countries in the region¹⁶. While these resources are considered sufficient, they are unevenly distributed across the territory and during seasons of the year.

The highest levels of water discharges are recorded in western and southwestern Serbia, and the lowest in Pomoravlje and Vojvodina regions. The areas with high water discharge closely correspond with mountain and forest landscapes. Western and southwestern Serbia has high forest coverage and many large PAs are located there (NP Tara, NP Kopaonik, Nature park Golija, Natura park Šargan-Mokra gora, Special nature reserve Uvac, and many others). Therefore PA conservation and management is of significant relevance for the adequate management of water resources including sustainable water use, water protection and purification, flood control, and erosion control.

Stakeholder in assessed PAs recognized the importance of preserved ecosystems for the conservation of water resources. Stakeholders in each of the six areas indicated that PAs values connected to water resources are of economic relevance for them. The government and business sectors most highly rated the economic value of water resources, mainly through hydropower plants, bottling companies, and communal water supply systems. In contrast locals living in and around PAs mostly acknowledged the subsistence value of water (water used for communal supply).



THE WATER SUPPLY OF MANY CITIES AND COMMUNITIES, AS WELL AS MANY WATER BOTTLING BUSINESSES, IN SERBIA RELY ON WATER RESOURCES FROM PAs



Special nature reserve Gornje Podunavlje © Boris Erg

Many of the protected areas include reservoirs that were created either for drinking water supply or for energy production. These reservoirs include Perućac and Zaovine in NP Tara, Vlasinsko lake in PL Vlasina, Zlatarsko and Uvac lake in SNR Uvac, Zavojsko lake in nature park Stara planina, and many others. Although these reservoirs are manmade, they are still providing many important ecosystem services. However, their management is still highly influenced by their primary function (power generation or water supply) and nature conservation aspects are often neglected.



95 percent of the hydropower production in Serbia comes from hydropower plants situated in or adjacent to PAs. The largest are HP Đerdap and HP Bajina bašta¹⁷.

¹⁶ World Bank Statistics: <http://data.worldbank.org/indicator/ER.H2OINTR.PC>

¹⁷ Water Management Strategy of the Republic of Serbia to 2034
http://www.rdvode.gov.rs/doc/Strategija_FINAL.pdf

Many sectors, including energy production and water supply, are highly dependent on functional ecosystems that provide water resources. Therefore, the sustainable management and conservation of those ecosystems should be of mutual interest. According to the Law on Nature Protection¹⁸, PA managers can collect fees for the use of resources within a PA. This could also include fees for hydropower generation within PAs. In practice however, the system doesn't function well and only some PAs succeed in collecting such fees.

Fees paid by hydropower companies comprise a significant portion of the budget for NP Tara¹⁹ and NP Đerdap for example, but many of other smaller PAs do not have the capacity to effectively enforce the collection of those fees.

Vlasinsko lake within PL Vlasina accumulates 176 million cubic meters²⁰ of good quality water that is used for communal water supply and for energy generation.

Other PA services that are connected with water resources are also very relevant, not only for people living in or near PAs but also for communities in wider basin areas. Unfortunately, the wider public still does not adequately recognize ecosystem services like water purification and flood protection.

Value of flood mitigation ecosystem service in Special Nature Reserve Koviljsko-Petrovaradinski rit was estimated to 1,3 billion RSD annually (ca 11 million €) what makes more than half of the total estimated value of all ecosystem services in the reserve²¹.



WIDER PUBLIC STILL
DOES NOT ADE-
QUATELY RECOGNIZE
ECOSYSTEM SERVICES
THAT PA PROVIDES
LIKE WATER
PURIFICATION AND
FLOOD PROTECTION



THE HERBS THAT
ARE COLLECTED
IN THE LARGEST
QUANTITIES ARE
WILD GARLIC,
WILD STRAWBERRY,
JUNIPER, WILD ROSE
AND BLUEBERRY

¹⁸ Official Gazette of the Republic of Serbia no. 36/2009, 88/2010, 91/2010 and 14/2016

¹⁹ Around 10 percent of the annual budget according to the Management Plan of NP Tara for 2016 - <http://www.nptara.rs/images/download/2016/Program%2oupravljanja%20202016.pdf>

²⁰ Water Management Strategy of the Republic of Serbia to 2034 http://www.rdvode.gov.rs/doc/Strategija_FINAL.pdf

²¹ Stojnić, N. et al (2015):Economic valuation of ecosystem services of Special Nature Reserve "Koviljsko-petrovaradinski rit". Provincial Institute for Nature Conservation. Novi Sad.

Wild food plants, mushrooms, and honey

Healthy and preserved ecosystems within PAs have good potential for the production of wild food plants, mushrooms, medicinal plants, and honey. These products have been traditionally collected and processed in many PAs. However comprehensive data and statistics, especially those that separate out collection in PAs from collection in other areas, are missing.

The total value of the industry related to aromatic and medicinal plants and mushrooms in Serbia, both wild and cultivated, is estimated at \$150 million²² annually. This market provides about 50.000 seasonal jobs for people living mainly in rural areas. However, what percentage of the market volume is connected to PAs is not known.

In 1993, Serbia introduced a system of quotas to control the harvesting of wild plants and animals in a sustainable way. Current legislation allows for the collection of around 65 plant species and 15 mushroom species²³. The collection of animal species, like green frogs, snails or leeches, has been suspended in past few years (zero quota). Collection in PAs is subjected to additional restrictions defined by PA managers or by responsible institutions (such as the State Institutes for Nature Conservation).

The amount of blueberries collected each year in NP Kopaonik is on average 20 tons²⁴.

Species that are specific for PAs include juniper, which is intensively collected in the area of NP Tara, and blueberries that are collected in large amounts in NP Kopaonika and PL Vlasina.

²² Herbs, mushrooms and forest fruit (medicinal and aromatic plants): value chain assessment: http://pdf.usaid.gov/pdf_docs/PAA00HSMX.pdf

²³ Decree on control of collection and trade of wild flora and fauna (Official Gazette of the Republic of Serbia, no 31/2005, 45/2005, 22/2007, 38/2008, 09/2010)

²⁴ Estimate based on the interviews with stakeholders.



Oyster mushroom © Dragisa Savić

According to available statistics, the volume of collected plants and mushrooms are usually well below the allowed quotas. This shows potential for the further development of businesses in this area. However, certain caution is needed since the capacity of responsible institutions for monitoring and control of collection is low.

Stakeholders in five out of six assessed PAs recognized the economic value of wild food plants and mushrooms. Clearly, the collection of wild fruits represents a significant source of income for local communities. People working in PAs assume that these activities have become even more popular after the downturn of the Serbian economy in the 1990's when many people started to seek additional sources of income.

People living around PAs (approximately 40 percent of all answers) are the stakeholder group which is mostly involved in collection of wild food and medicinal plants. Locals living in PAs also recognized the value of wild fruits and plants, but only in about 20 percent of all answers. This shows that specific restrictions in PAs limit the development of businesses connected with wild food collection, and that locals living in PAs probably have less access to the market.

Collecting wild plants and mushrooms is very significant source of income for vulnerable groups in remote rural areas, including: the poor, elderly, uneducated people, and the Roma population.



30000 BEEHIVES IN NATIONAL PARK FRUŠKA GORA

Beehive SNR at Gornje Podunavlje © Božidar Erž



Every year national park Fruška Gora hosts more than 30.000 beehives that produce high quality linden honey²⁴.

Honey production in Serbia is at low level. It amounts for less than 0,5 percent of the total value of agricultural production. The number of beehives is estimated at about 800.000 and only 5 percent of available bee pastures are used²⁵. Recently however, positive trends in honey production are obvious. More and more people are involved in this business and the volume of produced honey is increasing. In 2015, Serbia exported about 2.145 tons of honey worth \$9.1 million²⁶. The value of honey production was acknowledged by stakeholders in all assessed PAs. NP Fruška Gora is a very popular destination for honey producers as there are large communities of linden trees in this national park.

²⁵ Strategy of Agriculture and Rural Development of the Republic of Serbia 2014-2024: <http://uap.gov.rs/wp-content/uploads/2016/05/STRATEGIJA-2014-2020-.pdf>

²⁶ Bulletin of the Serbian Chamber of Commerce - [http://www.pks.rs/SADRZAJ/Files/Bilten%20Stocarstvo%2C%20april%202017\(1\).pdf](http://www.pks.rs/SADRZAJ/Files/Bilten%20Stocarstvo%2C%20april%202017(1).pdf)



Education



**STAKEHOLDERS IN
SIX ASSESSED PAs
RATED EDUCATION
RELATIVELY HIGH
AMONG ALL PA
VALUES**

New concepts for PAs emphasize their role in fostering environmental consciousness among visitors and local people²⁷. Moreover, education is used as a tool in PA management for reducing different negative impacts such as the illegal use of natural resources (hunting, fishing, logging, etc.).

However, education in PAs is still not a seriously considered topic among PA practitioners and decision makers in Serbia. Some PA managers develop and implement certain educational activities, but this is mostly done without a strategic approach or long-term planning. While education was declaratively recognized as an important set of activities and tool in PA management, it is not systematically supported through financial and staff capacities in almost all PAs.



Surprisingly given the current situation, stakeholders in six assessed PAs rated education relatively high among all PA values. In three PAs²⁸ education was recognized as a minor economic value, and in all six areas it was recognized as a non-economic value. When looking at the total number of answers, education ranks in the top third of non-economic values.

Every year about 10.000 children visit NP Tara on school excursions from all over the country²⁹.

The perception of the value of education is evenly distributed among different stakeholder groups. There is no significant difference between how the value of education is perceived by locals living in or around PA, PA managers, government officials or business representatives. Such a wide acceptance of the value of education shows its relevance and potential use in PA management.

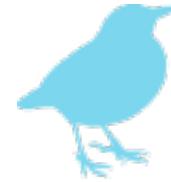
²⁷ Biderman & Bosak (1997): Environmental Education in Protected Areas as a Contribution to Heritage Conservation, Tourism and Sustainable Development. In: Nelson J.G., Serafin R. (eds) National Parks and Protected Areas. NATO ASI Series (Series G: Ecological Sciences), vol 40. Springer, Berlin, Heidelberg

²⁸ In National Parks Tara, Derdap and Kopaonik.

²⁹ Source: NP Tara



Pangaea, eco camp © Dmitry Sharomov



**PROTECTED AREAS
SHOULD OFFER A
NUMBER OF FUN
AND ENGAGING
EXPERIENCES TO
HELP CONNECT
PEOPLE OF ALL AGES
AND ABILITIES TO
THE NATURAL AND
CULTURAL HERITAGE
THROUGH LEARNING**

However there is an obvious discrepancy between the current level of investments in educational programs and activities and assessed stakeholder perceptions. For example, NP Đerdap plans to allocate about 0.6 percent of its total budget for education in the next planning period³⁰. In 2016, NP Tara spent less than 5.000 € for educational and promotional activities³¹. Yet, these two parks are considered relatively advanced in educational activities compared to other PAs in Serbia. An additional issue is weak and unsystematic explanation of educational activities in planning documents. A clear and consistent vision for the development of education within a PA is usually missing.

Several PAs are traditional destinations for school excursions, such as NP Tara and NP Đerdap. Hundreds of school children from all over Serbia visit these two parks every year. Due to the absence of developed programs, the majority of these children leave the parks without learning basic information about the parks and their natural or cultural values. PA managers have not developed appropriate capacities for managing school visits, and are not effectively using these opportunities for the promotion and management of their parks.

³⁰ NP Đerdap Management Plan 2016-2015 - <http://www.npdjerdap.org/up-content/uploads/2017/01/Plan-upravljanja-Nacionalnog-parka-Djerdap-2017-2026.pdf>

³¹ NP Tara Management Plan for 2016 - <http://www.nptara.rs/images/download/2016/Program%20upravljanja%202016.pdf>



WWF Academia © WWF / Milica Milović Kinoli



Education in Protected areas: within the regional project “Protected Areas for Nature and People” WWF is supporting five protected areas (NP Tara, NP Đerdap, NP Fruška Gora, SNR Gornje Podunavlje and PL Avala) to develop education programs and include them into the offers for visitors. Elementary and high school teachers and students living around PAs are involved in the „WWF Academy for Nature“³² where they develop environmental school projects in cooperation with protected area management. So far 40 park rangers have participated in workshops about basic nature interpretation, and 10 schools went through the „WWF Nature Academy“. By recognizing the importance of education and the advantages of re-training employees to become educators, protected area managers can serve as an example of a good practice that could be replicated in other protected areas in Serbia and beyond.

International initiatives in education are not sufficiently supported and used in Serbian PAs. For example, EUROPARC’s Junior Ranger Program has been implemented in Serbia since 2006, but only in NP Tara.

³² More information can be found at https://natureforpeople.org/wwf_examples/education/

Flow of economic values

Analysis of the economic flow and distribution of benefits from PAs is very important to understanding how PAs are managed and to what extent they are integrated into local communities. The total income generated within a PA does not provide a full picture of that PA's effectiveness and sustainability. If the income and benefits are mostly directed to one or two stakeholder groups, then the PA cannot be adequately supported and accepted by other stakeholder groups. In such a situation we cannot say that PA is managed in a sustainable and integrated way.

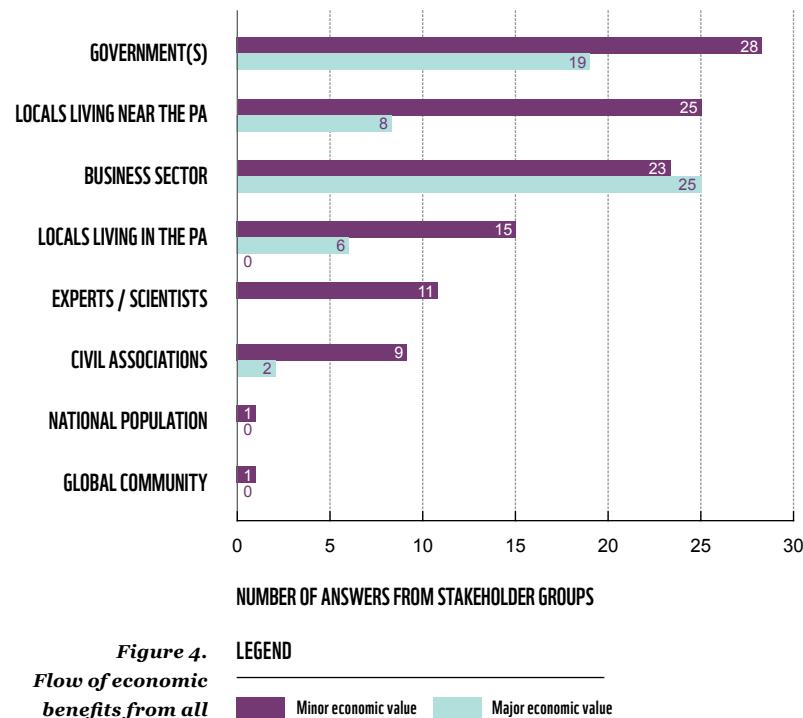


Figure 4.
Flow of economic benefits from all assessed values within protected areas to different stakeholder groups

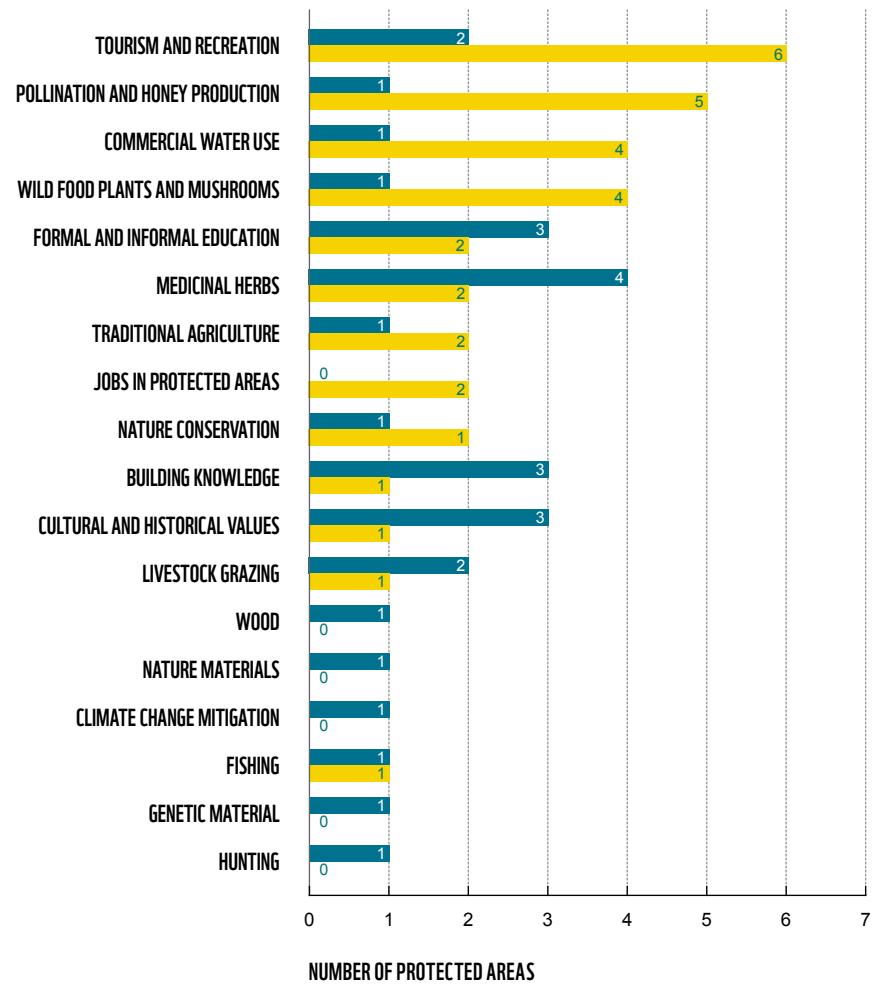
White water-lily © Jaroslav Pap

BUSINESS SECTOR AND GOVERNMENT HAS MOST OF MAJOR PA ECONOMIC VALUE

The distribution patterns of benefits in Serbia shows a relatively high centralization of benefits to the business and government sectors. This is to be expected since management bodies in all assessed areas are public institutions. Because of past political and social arrangements, the integration of local communities and civil society into public governance is still at low level in Serbia. This is very much reflected in the operations of the public enterprises that are managing PAs and natural resources. This situation is not only a consequence of opposition to participative management, but also the result of lack of knowledge and capacity to effectively involve other stakeholders in management. According to the assessments in the six PAs, local stakeholders and civil society are not adequately and equally engaged in benefit sharing. The discrepancy between the benefits flowing to these groups versus the governmental sector and business sector is high. This situation merits special consideration by PA managers.



Main potentials for PAs in Serbia



PA MANAGERS
SHOULD ADAPT
THE CAPACITIES OF
THEIR EMPLOYEES

TO CAPITALIZE
ON TOURISM
POTENTIALS

The overview of main PA potentials identified by different stakeholder groups provides a very useful set of information for PA managers, planners, and decision makers. Potentials acknowledged by stakeholders could be very instrumental in planning of future management objectives.

Tourism is at the top of the identified potentials. It is already considered as one of the most important values of PAs, and is already bringing substantial benefits to different stakeholders. Obviously, there is a lot of room for improvement and PA managers must adapt the capacities of their employees to capitalize on tourism potentials.

Education is very high on the list of potentials. The high perceived value of education, which has no explicit economic impact, is contrary to the current concept of PAs, which relies on direct use of resources. This shows that stakeholders are seeking more advanced, integrated PA governance that could bring benefits to a wider range of actors. This assumption is also supported by the very low identified potentials for wood extraction, which is the foundation of current PA management concepts in most of the PAs in Serbia.

The need for integrated management, which is open to local communities and other stakeholders, is reflected as well in the high level of perceived potentials for wild food and mushrooms collection and honey production. These activities support mainly local people in and around PAs and these populations are not sufficiently enabled and supported to participate in PA management.



Figure 5.
Economic potentials recognised by different stakeholder groups.

LEGEND

Potential without economic value Potential with economic value

Participation in PA management

Modern concepts of PAs call for intensive collaboration between all stakeholders. Managers of PAs should not only inform stakeholders, but must also develop structures and processes to involve them in management. Such participation greatly increases the effectiveness of management of PAs, while also creating an enabling environment for development while reducing threats.

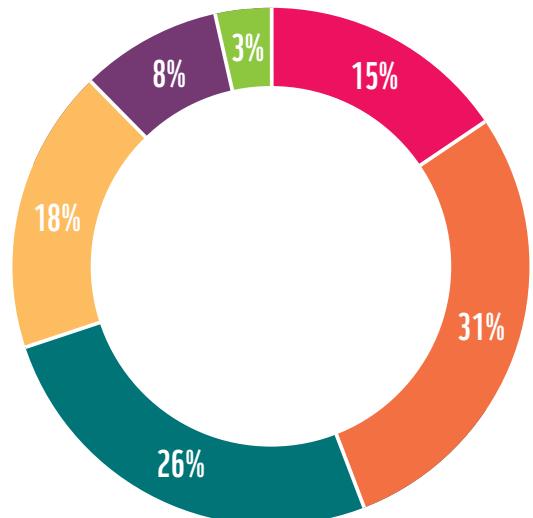
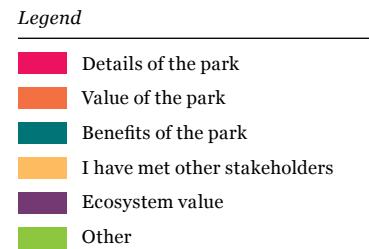


Figure 6.
**What was learned
during the workshops.**



A participatory approach is a relatively new concept for PAs in Serbia. Most of the PAs were established by the government and are managed by public institutions with very low participation of other stakeholder groups; especially local ones.

Over the past few decades, this practice has been changing. While the value of involving different stakeholders is still not fully recognized, certain changes in management practices are evident. In addition, the legal framework has changed requiring increased stakeholder involvement in PA management. Specifically, since 2015 national parks are obliged to establish stakeholder councils. While there remains room for improvement, some legal provisions for stakeholder participation in the processes of PA establishment and management planning are now in place.

Participant feedback on the assessment workshops were very positive. Over 90 percent of participants rated the workshops as excellent or very good, and 75 percent of respondents indicated that the workshops have met their expectations.



In cooperation with representatives from the Ministry of Environmental Protection, national park managers, natural resource users, local community representatives, and other local actors, WWF is developing models for stakeholder councils in three national parks in Serbia³³: Tara, Đerdap, and Fruška Gora. The project includes support to PA managers in setting up councils and the preparation of draft action and communication plans.

The survey showed that the majority of the stakeholders (over 50 percent) welcomed the discussion on values and benefits of PAs and would like to get more information and knowledge about that issue. It could be assumed that this group of stakeholders already has enough basic knowledge about their PA, know most of their fellow stakeholders already, and are seeking increased involvement in PA management in order to use the opportunities PAs provide.

³³ Find out more on https://natureforpeople.org/wwf_examples/stakeholders/



Koviljsko-Petrovaradinski rit © J.P. Vojvodina Šume

On average, 17 percent of the stakeholders stated that the best aspects of the workshops were meeting other stakeholders, and 64 percent said they made a new contact during the assessment workshops. These percentages indicate that communication among stakeholders is already taking place, but should be further improved. Also, around 80 percent of all stakeholders were open to future collaboration with other stakeholders. This could be useful for developing new local initiatives/cooperatives and mutual projects in the future.

All these results reflect the importance of the PA-BAT process for stakeholders. The assessments are not solely technical processes used for value and benefit assessments. They are very useful tools for fostering communication and cooperation among all actors in PAs.

**80 PERCENT
OF ALL STAKEHOLDERS WERE OPEN TO
FUTURE COLLABORATION WITH
OTHER STAKEHOLDERS AND
DEVELOPING LOCAL
INITIATIVES**



Challenges

The PA-BAT assessments provide good platforms for gathering relevant information about the specifics and functions of PAs. They can also be used to identify main challenges and obstacles for integrated management, sustainable use of resources, and effective cooperation between different actors.

Challenges in PA management, as well as in incentives for income generating in PAs, are numerous. Some of these challenges were identified during the stakeholder discussions, including:

1. The absence of a strategic approach to PA management and rural development. PAs are often not recognized and integrated in other sector strategies, plans, and programs.
2. The current PA system and its corresponding legal framework are not sufficiently supporting integrated and participatory governance of PAs, and natural resources in general.
3. Funding for most PAs is based on the use of natural resources, mainly wood. Larger PAs are mainly managed by public forest companies and they cover PA management costs by wood harvesting. The capacity of PA managers to diversify PA income is currently low. Many PA managers are simultaneously users of natural resources in PAs.
4. Legal documents relevant for PA management are often contradictory. Discrepancies between sectoral laws and planning documents are making it difficult to create transparent and participatory management, forge partnerships with private sector actors, develop sustainable tourism activities, and implement many other aspects of PA management.
5. Financial resources for the development of sustainable economic initiatives are limited and largely inaccessible by local communities. Therefore, they are not able to use PA potentials effectively and support conservation of the area.
6. The institutional framework for PA management bodies and their operations are not designed to support the integration of civil society into management, or create effective and transparent partnerships with actors in the private sector.

7. Although financial mechanisms for payments for natural resources do exist (such as taxes on the use of PAs, forestry and water funds), the collected funds are usually not earmarked for nature conservation activities or for integrated PA management. In addition, some PA have difficulties collecting taxes due to limited capacity.
8. Structures and processes for stakeholder participation are not developed and the overall low level of public participation is one of the main obstacles for effective PA management.
9. Capacities of PA managers are limited, both in terms of number of staff and in their competencies. It is evident that there are not enough experts on nature conservation, education, interpretation, and tourism.
10. Public support (or knowledge about) PAs is at rather low-levels due to a long history of authoritative and centralized management of PAs.
11. Local people, as well as the general public, are not aware of the full array of values and benefits that PAs are continuously providing to them. Ecosystem services, that provide significant support to local and national populations, are often underestimated.
12. There is no adequate recognition of the socio-economic role of PAs, especially in rural areas that are facing depopulation.
13. Monitoring systems for biodiversity, natural values, and ecosystem services is not in place in many PAs. Managers are mostly lacking accurate data on values and ecosystem services in their PAs. This prevents them from controlling the use of natural resources, as well as in promoting and initiating activities that are sustainable and compatible with the core functions of PAs.



Recommendations for use of the PA-BAT results

The results of the PA-BAT assessments in Serbia can be used by many different organizations or individuals that are active in the fields of nature conservation, rural development, or sustainable development. While PA managers are the primary audience for the PA-BAT assessments, the results of the assessment are also very relevant for local governments and local stakeholders who are involved in sustainable development initiatives in their regions. Ministries and other relevant institutions that develop policies for natural resources management and rural development should use the PA-BAT results to create an enabling environment for sustainable local initiatives in PAs.

Based on discussions involving more than 100 experts, government officials, entrepreneurs, farmers and local community members in general, these results reflect the actual situation, challenges, and opportunities local communities are facing. They are applicable across various fields/areas.



The nature protection sector in Serbia could work to address the issues identified during the series of the PA-BAT workshops and utilize the advice (guidance notes) on using the PA-BAT results that were developed in consultation with PA experts and authorities.

These guidance notes were developed to support the application the PA-BAT results in: 1. Management Plans, 2. The development of ecosystem service assessments, 3. Communication Plans, 4. Business Plans, 5. Interpretation and Education Plans, 6. Rural Development Plans, 7. Other project development.

The following issues should be considered:

1. Improved understanding of the values and benefits PAs are providing to people, especially to local communities, can significantly improve their management.
2. The PA-BAT assessments provide initial information for further development of detailed and targeted assessments for particular development initiatives.

3. Discussions about PA benefits and values are a basis for building participatory processes and partnerships between stakeholders in PAs.
4. The PA-BAT results help guide the strategic orientation of a PA or PA system on the national level. Also, the results provide useful data for management planning.
5. The benefits recognized by local people and stakeholders should be incorporated into content for awareness raising and the promotion of PAs in general. Benefits are elements of PAs that are easily understandable by the general public.
6. Modern concepts for effective PA management include the integration of PAs into local development programs. The PA-BAT results are very useful for guiding this integration and for developing local economic initiatives.
7. Due to its intensive participatory approach, the PA-BAT results reflect the actual situation in PAs and the real challenges people in and around PAs are facing. Therefore, they help PA managers to focus on practical solutions that could contribute to human wellbeing.
8. The process of conducting the PA-BAT assessment is equally as important as its results. Benefits and values change over time, as does stakeholders' perception of these benefits and values. A periodic revision of the PA-BAT assessments can help in updating and maintaining positive and constructive dialogue between stakeholders.
9. The assessed values and benefits provide very important inputs and can inform decision making, spatial planning, Environmental Impact Assessments (EIAs), Strategic Environmental Assessments (SEAs), or other similar processes.
10. PAs can become significant drivers of local economies. However, incentives for the use of natural resources should be always based on sustainable development principals to not jeopardize the main values of a PA. Development initiatives should be planned gradually, with special attention to a fair distribution of benefits among all stakeholders.



Recommendations for addressing identified challenges

Below are strategic recommendations for the improvement of the system of PAs in Serbia:

- Ensure better support from all state and local governmental institutions to PA managers.
- Integrate PA values and benefits into sectoral strategies and plans (forestry, water management, spatial planning, energy, education, and others).
- Establish good institutional cooperation between the tourism and nature conservation sectors.
- Establish good institutional cooperation between the educational and scientific sectors and the nature conservation sector.
- Establish a comprehensive legal framework for participatory management of PAs.
- Develop an enabling institutional framework for PA management allowing for integrative management practices and effective inclusion of local stakeholders and businesses.
- Start the transformation of PA management bodies to focus their activities on nature conservation and sustainable development of PAs. Initiate discussion about possibilities to phase out natural resource dependent PA management regimes.
- Create institutional arrangements to enable cooperation between businesses and the private sector and PA managers.
- Develop a legal framework to enable PA management to be adapted to local contexts (zoning systems, species managements etc.).
- Ensure financial support for the development of infrastructure needed for transforming PA values and potentials to concrete benefits.

- Support management activities to safeguard values with high potential (tourism, education, wild food collection, etc.) through the legal framework, planning processes, and financing mechanisms.
- Engage with media to promote PAs and their values.

Recommendations for PA level:

This is only a limited set of general recommendations. Each PA is specific and requires additional consideration of potentials, challenges, and solutions:

- Inform decision makers and policy developers about the values and benefits PAs are providing and advocate for the integration of PA-related issues into strategic documents of other sectors (forestry, water management, spatial planning, energy, and others).
- Initiate multi-sectoral discussions about the identified values and possible solutions for legal obstacles to the implementation of sustainable development initiatives.
- Integrate identified values and benefits into management plans.
- Develop participatory structures and allow the participation of local stakeholders in management planning. Focus groups should be established corresponding to the identified values.
- Start discussions on how to transform current management practices to enable better integration of local stakeholders and sustainable initiatives.
- Use the PA-BAT for strategic planning for PA management development and capacity building.
- Develop capacities according to identified values and their potentials.
- Support the development of local stakeholder capacity. The Capacities and resources of local people should be considered in management planning, and mechanisms for increasing and supporting local competitiveness should be developed.

- Advocate for sound financial mechanisms to ensure the return of money collected for the use of natural resources to PA management and local communities. The identified values should be used as a reference.
- Improve monitoring of biodiversity and identified values. Adapt monitoring systems (target features, effort invested) according to the values assessed in the PA-BAT.
- Gradually increase annual budgets for activities based on values with high potential (i.e. tourism and education).
- Strengthen capacities for tourism service provision, and improve tourism offers. Initiate and nurture partnerships with local actors in the tourism sector.
- Develop specific educational programs in PAs and develop partnerships with schools and academic institutions.
- Conduct detailed studies on the status and quantities of wild food plants, edible mushrooms, and medicinal plants. Engage local stakeholders in identifying potentials and developing a framework for the use and controlled harvesting of these resources.
- Support the development of markets for wild fruits and plants in or around PAs, based on fair trade principles.
- Identify and engage with vulnerable stakeholder groups and include them in sustainable economic activities in PAs.



Conclusion

The system of PAs in Serbia is still being developed. With PAs covering less than 7 percent of the nation's territory, Serbia is lagging behind the majority of the countries in Europe and the world. During the last decade the Serbian Government recognized the importance of strengthening its network of PAs and has adopted several relevant documents to further develop nature conservation. This includes the Spatial Plan of the Republic of Serbia which has set a target of 12 percent coverage of PA by 2020.

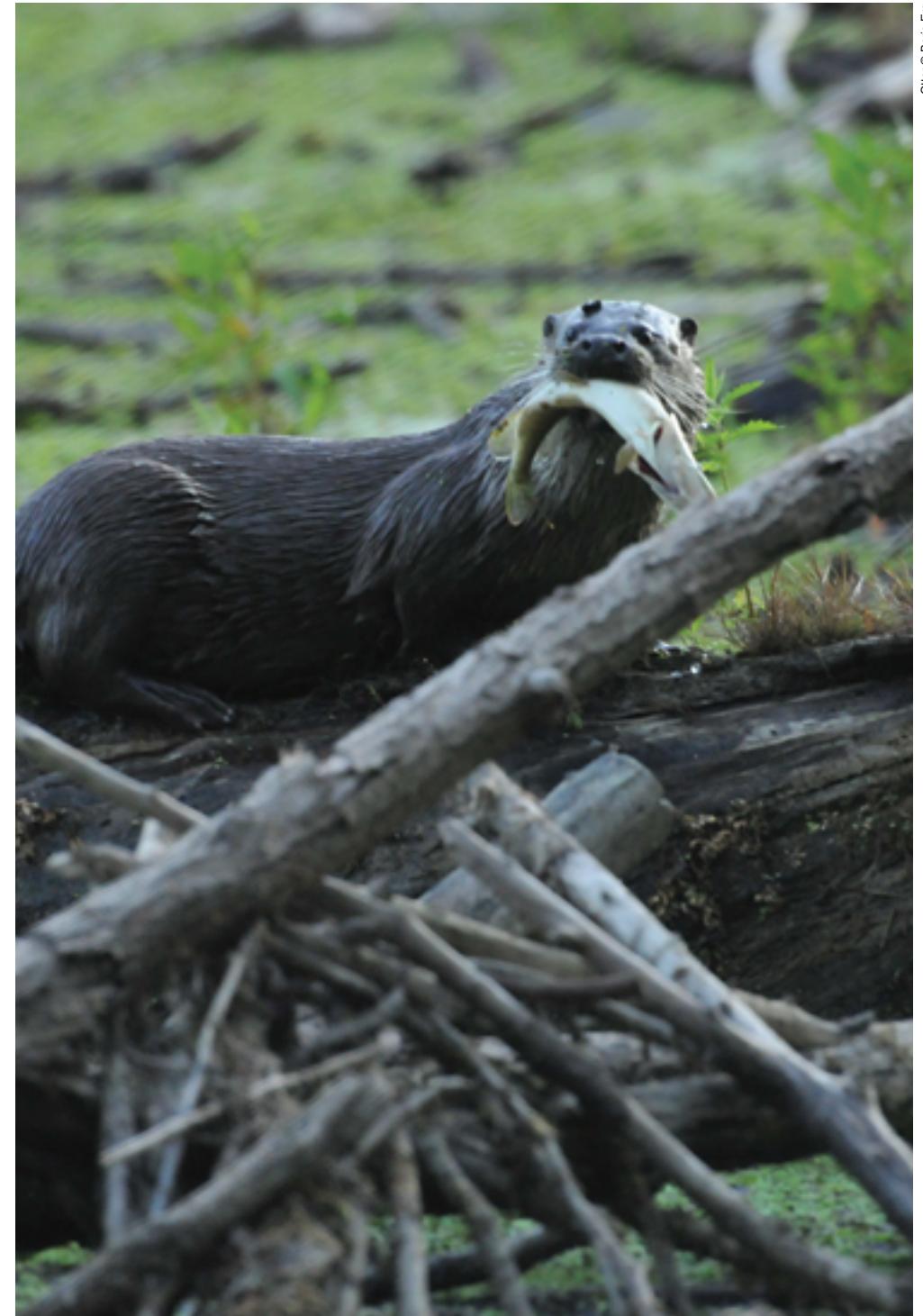
There are numerous challenges to harmonizing the interests of different sectors and different stakeholder groups that are slowing down the process of new PA establishment and development. These challenges and conflicts are often a consequence of partial and incomplete assessments and consideration of the natural values of potential PAs. PAs that are already established are facing similar challenges. Many of them are still threatened by detrimental projects that intensively use natural resources. Traditional practices that rely on the direct use of natural resources are prioritized, while the other values that PAs are providing are often neglected or underestimated.



A comprehensive assessment and evaluation of PA values and benefits provides a roadmap for the development of a more efficient and effective PA system, and nature conservation in Serbia. The PA-BAT assessment completed in six PAs has shown that stakeholders in Serbia recognize a wide array of PA values and benefits. They have identified many values that are important for their subsistence or for economic development. These are not only values based on traditional and direct use of natural resources (i.e. forestry, mining), but include other values based on sustainable practices. These values are highly dependent on the protection and conservation of natural resources (i.e. tourism and education). Such results justify the need for further development of a network of PAs, and for the improvement of management of existing PAs.

The PA-BAT methodology presented here can be used to support and facilitate these processes in a systematic and transparent way. The PA-BAT is not only about identifying values; it is also a very convenient tool for initiating and supporting communication and cooperation between stakeholders. And improved participation of different stakeholders in PA management is very much needed in Serbian PAs.

Overall, PA-BAT assessments and processes can also contribute to fulfilling a country's obligations under the Convention of Biological Diversity, including meeting the Aichi Biodiversity Targets (goals for conservation and sustainable use of biological diversity). PA-BAT assessments also support implementation of more than one of the United Nation's 2015 Sustainable Development Goals. Lastly, PA-BATs can also support the achievement of EU biodiversity targets for 2020.



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