



SKAKAVAC and BIJAMBARE Forest Protected Areas in Bosnia & Herzegovina

Tourism and Protection Strategy & Management Assessment

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Acronyms and Abbreviations

| | |
|---------------------|--|
| BMPs | Best Management Practices |
| BiH | Bosnia and Herzegovina |
| CFMC | Cantonal Forest Management Company |
| EU | European Union |
| FBiH | Federation of Bosnia and Herzegovina |
| FMC | Forest Management Company, like Sarajevo Sume |
| GIS | Geographic Information System (computer mapping) |
| GDP | Gross Domestic Product |
| ha | hectare |
| IUCN | International Union for Conservation of Nature |
| km, km ² | kilometer, square kilometer |
| m ³ | cubic meter |
| MAFW | Ministry of Agriculture, Forestry and Water Resources, Republika Srpska |
| MAWF | Ministry of Agriculture, Water Resources and Forestry, FBiH and Cantonal level governments |
| NPS | Sutjeska National Park (National Park “Sutjeska”) |
| NEAP | National Environmental Action Plan |
| NFI | National Forest Inventory |
| NTFP | Non-timber forest products |
| OHR | Office of the High Representative |
| RS | Republika Srpska |
| UNECE | United Nations Economic Commission for Europe |
| USAID | United States Agency for International Development |
| UNESCO | United Nations Education, Scientific and Cultural Organization |
| USAID CCA | Cluster Competitiveness Activity Project |
| WB | World Bank |

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1 USD \$ ~ 1.4 KM Bosnia and Herzegovina convertible marks

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*I am the heart of the home.
Don't cut me without reason.
The Forest Prayer
Bijambare Protected Landscape
Bosnia & Herzegovina*

Executive Summary

Bosnia and Herzegovina (BiH) is at a threshold for pulling government institutions together to improve management of protected areas, and increase regional and international tourism. The assessment of these two protected areas, within the context of increased forest recreation uses throughout the state (BiH) is timely.

The two areas in this assessment are:

Skakavac Vodopad (Waterfall) (1430.7 hectares)

Bijambare Protected Landscape (367.36 hectares)

The issues facing protected area management differ by the site, location, and administering type of governance. There is high level awareness that protected area management needs to be improved, and generally expanded. Expansion of protected areas always has its tensions. Likewise, there is high level awareness that forest management practices need to be improved and certified. These factors, with supporting budgeting and planning emphasis, will help improve opportunities for sustainable tourism and regional use.

Two broad scale assessment methodologies were created to assess the overall natural values of the protected areas, and the overall management structure to support use and protection of the identified (in proclamation law) values for the three protected sites. Criteria were developed to support a general assessment of natural values and management structures.

In regards to natural values protection, the basic natural situation at the two areas is evaluated and determined to be moderate and trending upward and improving. Individually, there are issues that should be addressed, to improve overall conditions, ecological diversity, attractiveness of the forest setting, environmental sustainability, and visitor experiences.

In regards to management approaches, overall, at the FBiH and Sarajevo Canton level, there are strong attempts to develop a planning process that uses strategic goals and addresses land use issues. This is a positive step, and the effort would and should be a prototype throughout the FBiH. As is normal for such planning efforts, implementation, monitoring and evaluation / feedback that can be improved.

There are recommendations for improving on-the-ground management at each of the areas. A best management practices regime for forest recreation sites is proposed, and would be useful if it receives higher level management support and operational funding. In all, the report includes a number of prioritized specific recommendations in all the above categories.

Work at the Canton level and at the Sarajevo Sume Forest Management Company is headed in the right direction to work towards sustainable tourism and to increase the overall quality of their forest management practices. There is reason for optimism that better funding structures are being put in place. Certification of good forest management practices is seen as a benefit. Much remains to be done in communicating information about the working forest and the high value protected areas. It won't take long to influence the international traveler, but there is a need to put basic natural system protection infrastructure in place so that BiH is ready for that visitor, and for the regional people who appreciate their forests.

1. INTRODUCTION: GENERAL CONDITIONS

This report is a contribution to improving the management of forest recreation areas and identified protected areas in Bosnia & Herzegovina (BiH), in order to sustain their present natural values and make them more attractive to domestic and international tourists. This assessment covers two separate areas, Skakavac Waterfall (1431 hectares) and the Bijambare Protected Landscape (367 hectares)

Protection mandates for these two protected areas are defined by federation law. This assessment addresses protection of their basic natural values and identifies opportunities to improve management for the regional and international visitor.

Bosnia and Herzegovina (BiH) has a long history between the people who live in and near the forest, and their relationship to that forest. The forested area (52% of BiH, and estimated to be 80% still in some type of state ownership) provides outstanding opportunities for forest recreation for the people of Bosnia and Herzegovina and the international traveler. Efforts are presently being made to improve upon these opportunities, and provide additional visitor services. Much has been done, and there are opportunities for additional improvements that will promote greater appreciation of BiH's natural values, and a greater understanding of the environment. Out of this the overall quality of life can be improved by additional economic opportunities in a sustainable fashion, improved environmental conditions, and a greater knowledge and appreciation of the environment.

This assessment integrates environmental values, social conditions and economic opportunities (tourism) to build meaningful on the ground strategies for improving these protected areas. This report recognizes that these forests are producing economic opportunity as working forests: in the past, now, and likely into the future. Much of this report can serve as a template for other forested areas, including forest recreation sites not officially given a protected area status.

The vision for these forested lands is to build upon improvements and progress already made to date, provide better information for the forest visitor, initiate cyclic management practices to improve on-the-ground conditions, and implement various best management practices that will make conditions better. Above all, identified natural values must be sustained.

1.1 Skakavac Waterfall

Skakavac Falls is a relative natural or wild area, presently receiving light use. Its natural values are scenic, botanical, water, and forested vegetation. Peak use appears to be around weekends, or holidays, and involves people getting out to picnic and hike. The area has meadows and open areas, conducive to dispersed picnic use. No sanitation facilities were observed at the site. There is indication of private land in the area, with opportunities on this land to have shops or fast food (meaning a snack, water soda or coffee). No concession type food or facility is located now, but this apparently is an issue to the planning process.

This area is identified by the FBiH proclamation (April 25, 2003) as 1430.7 hectares, north of Sarajevo and in the mountains near the urban area (approximately 30-45 minutes from downtown Sarajevo). The proclamation calls the area protected nature monument under the jurisdiction of the Sarajevo Canton and managed by Sarajevo Sume, the cantonal forest management company (FMC). The area is forested, with large limestone cliffs, resurgent springs from upland karst topography, and the 98 meter high waterfall, which apparently runs for much of the year because of the spring sources. The area has a wide variety of trails to the falls (and to the base of the falls), picnic tables, interpretive and forest protection signs. The area is bisected by an unpaved road (also in need of maintenance) but with drainage and infrastructure. At present there is a gate across the road, which restricts vehicles to the general area of the falls.

Both Bijambare and Skakavac have been transferred (delegated) to the Sarajevo Sume Forest Management Company to be managed by Sarajevo Canton. No statistics on visitor use are available, but extrapolating from Bijambare, use is probably considerably less than the 600 cars per day on the weekend seen there (see below).

Sarajevo Sume has completed and presented a multi-year land use plan for the area. Public discussion on the plan is underway, and the Sarajevo Canton will provide for its completion in the near future. Completion of that plan will likely lead to increased restrictions to meet the protected levels required in the proclamation that created the park. Budget is developed for operations through an annual budget plan. Projects are added by development of project funding through a variety of sources, including NGOs, and ministries within the Canton. The

Sarajevo Sume has FSC certification for one of its forest management units (FMU). Budget for the area is approximately KM 160,000 per year. There are three permanent on-site staff (not resident but daily on site), and these handle the routine operations at the sites. Forest protection issues appear to be moderate, and there are facilities and signs for forest fire protection and monitoring for insect infestations.

Heavy use and littering are the most current risks. These are apparently being addressed in the management plan. Forest protection issues, such as fire due to fuels build up and dry weather are a concern. The site has fire fighting tools available for fire suppression. Monitoring of forest insect infestation is presently occurring. Sanitation cuts are used, and if a tree looks like it is dying due to disease or insects, it is removed quickly.

The protected area includes a complex pattern of a third of the area in private ownerships, where there are reserved "rights" to graze and some other uses. These are trying to be clarified in the current planning process; however, the private lands can lead to problems with customs and habits of owners.

- *Overall Assessment:* Management by the Sarajevo Sume Forest Management Company is attentive, and responsive to the issues at the area. The natural values at the area basically involve the physical attractiveness of the area to the visitor, and in this regard the company is meeting its objectives, with minor exceptions involving maintenance and micro-trash. The focus for protection at Skakavac, other than biodiversity, is to assure that the waterfalls continue to function (through maintenance of the springs, and attention to the karst spring recharge area beyond the protected area) and physical attractiveness of the falls is protected. They appear to be meeting this objective, and have managed surface runoff and the springs to assure that the beauty of the falls is maintained.

1.2 Bijambare Protected Landscape

The Bijambare (name meaning land of 1000 marshes) is a protected landscape under a FBiH September 25, 2003 Proclamation. The area is 367.36 hectares. The area includes numerous karst features, including 7 identified caves and related cave systems, and one developed cave.

The site is developed and has a lodge (owned and run by the Mountaineering Society) near the developed cave. There are numerous picnic facilities around the area, and one toilet facility. The site has a large parking area and a visitor contact station where tours of the cave are set up. Annual budget for park operations is estimated at KMS108,000 per year.

The development within the Srednja Pecina cave has been outstanding – sensitive to the fragile geologic and biologic features in the cave environment, use of "natural" type lighting and backlighting, and protection of the cave environment.

The park does not include all of the land that influences the cave – the map of the cave goes outside the exterior boundary of the protected landscape. In karst topography, and with development or intensive use of surrounding lands, this can be important. It is interesting to note. Consideration should be given to expanding the boundary to include the land that has the most direct influence on the cave environment.

An inventory of the extent and depth of the undeveloped "wild cave" resources would be valuable to clearly delineate the needed size of the protected area. The international cave community probably has an indication of the extent and scope of this subsurface/surface relationship, but they haven't readily communicated this to Sarajevo Sume. In addition, it would be good to give information about the wild cave resource to the existing park staff so that they could communicate more accurately the nature and type of the system and how it relates to existing surface resources and land use.

- *Overall Assessment:* The protected landscape for the 1000 Marshes is a solid effort to put in place on the ground protection, interpretation, developed facilities and forest recreation opportunities. The entire area is physically attractive, generally showing

evidence of careful maintenance and management attention. The current planning process is addressing a variety of on-the-ground situations, including forest protection (fire and insects), private land in-holdings (approximately 30% of the protected area), and general land use.

1.3 Governance

At the state (BiH) level, there is no institution/body responsible for protected areas, nor overall forest management for that matter¹. In the FBiH, where both of these areas lie, forestry activities are administered regionally through 10 Cantons. The forested lands with protected areas are partially under the jurisdiction of the Ministry of Regional Planning and the Environment in the FBiH (covering Skakavac and Bijambare). In another example, for Sutjeska National Park (within the RS) there are three direct lines of supervision and one general line of supervision including the Ministry of Education and Culture, Ministry of Agriculture, Forest and Water Management and Ministry of Urbanism, Civil Engineer and Ecology, with additional guidance being provided by the Ministry of Trade and Tourism.

In the FBiH, the management and planning for Skakavac and Bijambare has been delegated to the Sarajevo Sume (forest management company) under the general oversight of the Ministry of Urban Planning and Environmental Protection, of the Sarajevo Canton. Sarajevo Canton has overall jurisdiction over three protected areas, the Skakavac and Bijambare of this assessment, and the Vrelo Bosne (Spring of the Bosnia River). Day to day operational management of both Bijambare and Skakavac fall under the delegated responsibility to Sarajevo Sume, the forest management company.²

Funding for management of forest lands and protected areas within FBiH comes from the general receipts tax of 0.1% on the gross receipts from the all business sales.

Under FBiH's 2002 Forest Law, one cantonal forest company enterprise (such as Sarajevo Sume) is to be established and be responsible for managing the forestry activities with each forest management unit (or a collection of FMU's) as outlined in the annual management plans. Consistent efforts are going into the management of the protected areas, and this is supported by the overall assessment of this study.

Four component planning efforts were initiated in 2003 to support reforms associated with forest management in BiH, with World Bank support.

1. Forest and fiscal management of receipts;
2. Improving the technical capacity for sustainable forest management (including a big investment in GIS mapping);
3. Biodiversity and forest conservation, and
4. Implementation projects within each entity.

These reforms support expanding protected areas, funding for protected area management, increased awareness of the value of protected areas, better management attention of protected areas, and GIS technology to support planning.

¹ Paraphrasing and building upon the discussion from Denison (January 2006) Forest and Wood Sector Review.

² Management and operation of the Vrelo Bosne protected area is through a cooperative management model that includes a wide variety of stakeholders. Vrelo Bosne is really an urban park, as indicated by the heavy visitor use and the intensive commercial development of the site, and public water facilities. This level of development does not make this area comparable to the more wildland forested areas of Bijambare and Skakavac

2. ASSESSMENT RESULTS

Presented first is the overall results of the assessment based on two assessment approaches, then the assessment of individual subject areas. The assessment of individual subject areas provides the detail behind the overall assessments.

2.1 Overall Assessment

Two approaches to the overall assessment were used.

First, a general assessment was made of the status of protection of basic natural values of the area, according to four criteria. The technique for this assessment is based on the Puhe and Ulrich (2000) broad scale survey of European forests. Second, management is assessed based on a general model of management for sustainable tourism, based on the Eagles, McCool and Haines (2002) IUCN framework.

For each criterion, the following rating scale was used:

- H** High: Criterion being met to a high degree; low priority for near-term additional attention
- M** Moderate: Criterion being met, but additional effort needed to improve the situation
- L** Low: Criterion not being met; priority effort should be made by management to improve the situation.

2.1.1 Natural Values

Four general areas of protection of natural values are applicable.

1. *Ecologically appropriate silviculture*: This criterion covers ecologically-adapted forest vegetation, stands, species types, soils, and watershed values through use of sustainable forest management techniques. This is demonstrated in part by international forest certification. *Rating: M*
2. *Effective forest protection*: Protecting the forest from degrading effects such as fire, insects, disease, subsistence gathering of firewood, and unregulated and exploitive (unsustainable) logging. This is evidenced by physical steps to protect the forest from fire, insects or disease, and again by forest certification. *Rating: M*
3. *Biodiversity*: Diversification of the forest vegetation and supporting ecosystem, while supporting a number of species of wildlife, endemic plants and major forest vegetation stand structures (different ecological stages of succession, stand structure and the wildlife that depends on these different forest types). This criterion is difficult to measure but evaluated by observational, anecdotal information indicating trends in improved populations of wildlife, and a professional assessment of forest complexity and stand types. *Rating: M*
4. *Attractive scenery*: The forest looks “good” (pleasant, natural, beautiful) to the casual forest visitor (or international traveler), based on abundant green (as seasonally appropriate) vegetation, open stands, some large trees, and non-obvious intrusions by humans (open clear-cuts, stumps, trash, etc.) *Rating: M*

Natural Values Summary: Overall the general assessment of the natural values of the two selected protected areas in Canton Sarajevo is moderate and trending upward and improving. Individually, there are issues associated with the four criteria that should be addressed, and would improve overall forest conditions, ecological diversity, and attractiveness of the forest setting to improve environmental sustainability, and enhance visitor experiences.

2.1.2 Management Approaches

Six criteria are used to assess overall governance and management practices and performance within the two forest recreation areas.

1. *Goal/Objective setting:* Do goals or objectives exist and at what governance or administrative scale? *Rating: H*
2. *Planning:* Has there been any planning (formal or informal) at the appropriate level of governance that would indicate how the goals or objectives are to be achieved? *Rating: H*
3. *Resource Allocation:* Have resources (budget, workforce, implementation actions, etc.) been allocated to accomplish the plans? *Rating: M*
4. *Implementation:* What actions have been taken on the ground, or what is the current status of resources conditions? *Rating: M*
5. *Monitoring:* Is there any formal or informal systematic method of determining if conditions on-the-ground are meeting their intended objectives? *Rating: L*
6. *Feedback/Evaluation:* How are results being used to change objectives, modify plans or shift resource allocations? *Rating: L*

Management Approaches Summary: Overall, at the FBiH and Canton level, there are strong attempts to develop a planning process that uses strategic goals and land use issues. This is a positive and strong step forward, and the effort would and should be a prototype throughout the FBiH. As is normal for planning efforts everywhere, implementation, monitoring and evaluation / feedback can be improved.

2.2 **Subject Area Assessment**

The basis for the preceding overall assessment came from detailed assessments covering the following subject areas, which are each reviewed in this section.

- Objectives, Planning, and Budgeting
- Litter and Attractiveness
- Maintenance
- Facility Design and Signage
- On-site Presence
- Sanitary Facilities and Water
- Maps

Each subject area contains a status assessment and priority recommendations for action.

2.2.1 Objectives, Planning, and Budgeting

Both areas appear to have undertaken, are undertaking, or will undertake a rational, multi-step planning process to determine how best to meet their goals for the areas. Skakavac and Bijambare have their goals defined in law (proclamations) by FBiH legislation, or the Cantonal legislative body. There is strategic thinking as to how these goals will guide plans and actions.

At the time of writing, the Skakavac area is undergoing revised planning. A public hearing is being held with local citizens, and those with private in-holdings (individual parcels of private land within the exterior boundary of the protected area that was included in the protected area by the proclamation), or rights (timber, grazing, water) in the area. The process is politically charged (as are all planning processes). Planning for the Skakavac area uses a good inventory of resource conditions, GIS technology, and overlays to present the status of the resource, conditions and risks to the resources and alternative ways to meet objectives. The Sarajevo Canton Ministry of Urban Planning and Environmental Protection indicates this is a pilot and hopefully can be a model for other areas.

Recommendations:

- Continue to support at the highest level of governance the need and necessity for a rational planning process that meets defined upon goals and objectives for the forest sites or the protected areas. Planning processes must always include stakeholders, municipalities and local communities.
- Promote at all governmental levels better forest management standards including respect for protected area boundaries, and high level or international monitoring of authentic protected area status.
- Promote inspection programs that reward good forest practices and regulate poor and wasteful forest practices.

2.2.2 Litter and Attractiveness

One of the major cross-cutting issues at all the protected areas and recreation sites is the management and reduction of litter. There is a need for much better anti-litter signage and “leave no trace / pack it out” anti-litter print education materials. More and better trash receptacles are needed. Anti-litter enforcement is needed. In addition, “micro-trash” (cigarette butts, bottle caps, gum wrappers, broken glass) is a problem that receives virtually no management attention, and indeed is exacerbated by trash receptacles with wire mesh bottoms that allow micro-trash to fall through.

Sarajevo Sume has developed an informal environmental education campaign at its protected and other high-use areas that encourages environmental awareness, sensitivity, and appreciation.

Recommendations:

- Support national anti-litter campaigns with an integrated message about littering prevention and sensitivity to the forest environment throughout BiH
- Develop environmental awareness materials that promote sensitivity and appreciation of natural values, and encourage “leave-no-trace / pack it out” behavior
- Improve and increase trash receptacles and train staff in litter management
- Actively enforce anti-litter regulations.

2.2.3 Maintenance and the Cycle of Maintenance

Generally, the overall appearance of the developed recreation sites is average, and in need of improvement. A routine cycle of maintenance appears to be the number one operational issue that would have the most positive impact to the regional and international visitor. Many of the facilities (picnic tables, small shelters, interpretive signs, bridges, barricades, or entrance signs) are new, light wood, and require careful and deliberate maintenance. Routine maintenance, as an example at Bijambare, is performed by the on-site workers, and more complex maintenance is performed by a maintenance crew that comes to the area on some type of schedule, or on demand. Routine on-site maintenance appears to involve general litter pick-up, emptying litter barrels, and cleaning of facilities. Routine on-site clean up does not appear to focus on micro-trash: the small pieces of broken glass, bottle caps, cigarette butts or paper less than 5 cms..

One current management practice is to prune and cut small brush and trees within the developed area (including small branches fallen from trees) and stack them in the sinkholes. It is not recommended, for a variety of reasons. Most important, as an environmental education message, one should not communicate that karst sinkholes are a place to dump ANY excess material (branches, annual grasses, etc.). Instead, communicate the message that these features are the recharging mechanisms for spring aquifers for the communities in the surrounding valleys, and should be taken care of and kept clean. Secondly, the trash piles are unsightly. Third, if they are burned, as may be the case, this burning will send a concentrated rush of nitrogen (and other released chemicals) into the cave system, with potential impacts to cave resources or surrounding springs (possibly resulting in algal bloom at the springs).

A regular and managed routine maintenance, including pickup after intensive use periods such as weekends and holidays, removal of graffiti, repair after vandalism, and steady emphasis on maintenance that removes micro-trash, would quickly bring about a marked improvement in the general appearance of the site.

Appendix C of this report contains a comprehensive listing of best management practices in forest recreation site maintenance.

Recommendations:

- Train park staff in best management practices in forest recreation site maintenance
- Implement standards for maintenance with defined responsibilities at all levels.

2.2.4 Facility Design & Signage

The light wood shelters and signs, add utility and beauty to the sites, but do raise some issues. The tables are a solid, popular design, but their light color tends to make them vulnerable to heavy graffiti. The recreation facilities are basically constructed from surplus wood that Sarajevo Sume has available. The crews that design and build the facilities take great pride in their work, and a common design standard should not be imposed on this type of ground-level innovation and dedication.

Interpretive signs show innovation in their design. Images are computer/GIS generated, and placed in the interpretive signs, and covered with plastic. However, they deteriorate quickly, and are in need of constant maintenance.

The regulatory and informational signs are also made from the light colored wood products. These signs have international symbols to communicate cautions and general information, but not in the international "brown" standard. The educational signs communicate a positive, caring message to the visitor. They should be translated for the international travel.³

Recommendations:

- Augment the local signs with international "brown signs" along regional highways and in communities
- Continue the unique use of on-site signs, and augment these with the general orientation international signs at one or two central locations in the park⁴
- For future constructions, consider the use of darker colors of wood, paint, or stain that would not contrast graffiti and vandalism as the lighter wood now does, and consider a simpler design for the shelters or signs that would not be as easily vandalized
- Consider not adding additional facilities (through one time project funding) until management structures are in place to assure cyclic management of what has already been constructed
- Consider the use of a stronger plastic or "lexan" for the interpretive signs instead of the present clear plastic.
- As funds permit, consider the use of the more permanent recreation type signs (3M-type processes), and until then, maintain signs regularly and keep them up to date.

³ Such positive messages as the following were seen: *The beauty of our life depends on our environment; Our politics is nature; Earth belongs to everyone and we want to keep it that way; Earth doesn't belong to people; people belong to the earth*

⁴ Examples of sign standards and facility standards are included in the reference material to this report

2.2.5 On-site Presence

Skakavac suffers from the lack of consistent on-site presence. Bijambare has an on-site presence for the cave tours, and workers are generally present in the area. On-site presence provides information, security, and other visitor services; provides oversight and enforcement to decrease vandalism, litter, and graffiti; and communicates a sense of constant care for the protected environment. It also ensures that user fees, if any, are collected, and opening / closing hours honored.

Public-facing onsite staff would provide verbal be trained and equipped to:

- Provide information about the area's attractions and features verbally (requiring foreign language ability at some level) and in written form in multiple languages.
- Provide cautions, rules, "do's and don'ts"
- Interact with the public, enforce rules and regulations, handle emergency situations, obtain assistance if needed
- In some manner enforce authority to get compliance with regulations

Onsite staff should be visible and easily identifiable in uniforms that communicate both service and authority. A "park ranger" image works well. Moreover, park service vehicles should be uniformly colored and marked.

Recommendations:

- Establish a uniformed "park ranger" service for the protected areas responsible for constant onsite presence, provision of visitor services, and enforcement of rules and regulations
- Train park staff in providing visitor services, including basic communication in foreign languages
- Construct and staff an information center for all onsite visitor services.

2.2.6 Sanitary Facilities and Water

Sanitation is not a problem when use is low, and use is dispersed. However, where visitor use is concentrated, this can lead to a visual and public health sanitation problem. Bijambare has sewer infrastructure, and facilities are provided at one centralized location. However, at both sites, it is apparent from observation of paper / toiletries litter that small rock shelters, caves, and nooks in the forest are used as toilet facilities. This will eventually be a major problem.

For the international traveler and the female traveler, this is an issue. There appears to be a lack of sewage collection infrastructure (like septic tank cleaning) that would support maintenance of pit toilets in dispersed locations. Location of pit toilets in karst terrain is also problematic because of the possibility of pollution of the cave environment by direct transport through cavities or sinkholes.

The sanitation issue should be addressed when developing plans, including consistent maintenance cycles for sanitation facilities that are constructed, so that they are not left to deteriorate and become a problem themselves.

Clean water is and will be an issue. Developed sites require making clean water available to the recreational user. As with sanitation, as use increases, the threat to clean water from backcountry giardia (or other bacterial pathogens) will increase.

At certain locations in these parks, there are developed springs for the user – box collection systems, usually from an area of approximately 10-15 meters, with one or two copper tubing spouts from the spring box. To a visitor, this may or may not be a safe source, but local users do not seem concerned. Guides indicated that back country giardia was not an issue, and they evaluated whether or not they used a spring by its appearance (which is problematic). Quick inspection of these spring sites found a small area collecting water with natural vegetation providing filtration, and little or no livestock grazing in the areas. In the karst areas (internal

drainage through large cave systems or channels/cracks), the concept of pure water can be problematic. Karst drainage systems are notorious for their higher potential for pollution or distribution of unclean material long distances because the water flow is through systems rather than through percolation and filtration – the difference between limestone and sand/gravel/sandstone/alluvium.

Recommendations:

- Develop a plan for adequate sanitation facilities and their regular maintenance at both Skakavac and Bijambare
- Monitor carefully bacterial water quality issues, and work with stakeholders to ensure a sanitary environment around spring water facilities.

2.2.7 Maps

Both protected areas have boundaries defined in proclamations or law. For effective protected area management, there must be a strong and obvious correlation between conditions on the ground and protection objectives. Planners/administrators directly working with on-the-ground issues (as compared to higher level administrators) knew exactly where those boundaries of their areas were, although there wasn't clear identity with boundary markers or signs on the ground. Culturally, there seem to be little conflict over exactly where boundaries are (through the conventions of titles or ownership), however there are spatial concerns about land use. Good solid, tourism focused orientation maps would benefit the travelers and visitors to both areas.

Recommendations:

- Develop highly accurate common official maps for both areas. The maps should accurately and fully specify protected area boundaries, and immediately surrounding watersheds / landscapes in which activities could impact the parks. GIS technology is available to support an intensive mapping effort.
- Develop an interpretive map for visitors, showing boundaries, roads and trails, land use zones, and all visitor facilities, employing standard international symbols, messages and legends.⁵

3. CONCLUSIONS

Protection of identified natural values, management attention, and management support for Bijambare and Skakavac is headed in the right direction. The identified issues facing management of these protected area can be accomplished, with the appropriate management attention, proper resources, and dedication to seeing the issues resolved. Fixing these problems will require continued management attention over time. Management should be also paying close attention to the results of the planning process and assure that cyclic and operational funding is obtained to implement the final plans. Some of these issues will require the pulling together of various interests and stakeholders to initiate a process to address the needs.

⁵ United States Park Service maps are good models, as is the Mount Velez region map / guide developed by the Tourism Community of Herzegovina-Neretva Canton and the Japanese International Cooperation Agency.

ATTACHMENTS:

A: References

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B: Interviews and On-site Visits

Curic Nusret: General Manager, Sarajevo Sume Forest Management Company;

Hrvat Selim, Manager Ski Center, Olympic Center Sarajevo;

Srndovic Radenka, Director, Sutjeska National Park, Tjentiste:

Zijada Kravac, Assistant Minister, Sarajevo Canton, Ministry of Urban Planning and Environmental Protection, Sarajevo

Vladimir Lalovic, Guide, Sutjeska National Park, Tjentiste

Horita Colakovic, Deputy Land Use/Forest Planner, Sector for Ecology and Protected Areas, for Sarajevo Sume Forest Management Company

Mina, Guide at Bejambare Protected Landscape.

Sumer: Stakeholder, and Guide for Green Visions.

Thierry Joubert, Partner, Green Visions Eco-Tourism, Sarajevo

On-site Visit: Skakavac Falls

On-site Visit: Sutjeska National Park (two days)

On-site Visit: Bujambare Protected Landscaped

On-site Visit: Barice Dispersed Forest Recreation Site Near Sarajevo

On-site Visit: Veliko Polje Igman Dispersed Site Near Sarajevo

On-site Visit: Bjelasnica Ski Center, near Sarajevo

On-site Visit: Vrelo Bosne, near Sarajevo

C: Statement of Work Assessment Criteria

The following is a narrative description of the statement of work identified assessment criteria which have been clarified for this assessment. Some criteria have also been added.

1. Visitor Services: Services provided to the forest visitor to keep them safe or enhance their visitor experience.
 - a. Facilities: Any type of facility used to protect or enhance the experience of the forest visitor.
 - b. Equipment: Equipment used to support or guide workers or visitors at the forest site.
 - c. Visitor Information: Information distributed to regulate, inform, guide or enhance the activities of the forest visitor.
 - d. Picnic Facilities: Constructed facilities to guide and enhance the picnicker.
 - e. Restrooms: Constructed facilities to provide sanitation facilities to the forest visitor.
 - f. Camping Facilities: Constructed facilities to provide for an overnight stay at the forest site.
 - g. Trash receptacles: Dispersed, concentrated, or techniques for off site (LNT, or Pack in, Pack out) signage to provide for litter management at the forest site.
 - h. Parking: Parking developed to provide adequate space for the forest site visitor.
 - i. Paths: Constructed or developed hiking paths to provide for the forest visitor and protect resources at the forest site.
 - j. Handicapped: Some type of constructed facility acknowledging and available to the disabled visitor.
2. Visitor Activities: Are there facilities that promote some type of recreation activity, such as tennis, soccer, or play ground facilities
3. Educational Programs: Are there facilities, signs, or trails that provide on-site interpretations of natural values
4. Signage: Are there constructed regulatory, safety, protection or interpretive signs.
 - a. Trail Marking: Are there signs giving direction to hiking trails.
 - b. Natural: Are there signs providing interpretation of natural or biodiversity values.
 - c. Educational: Are there signs providing interpretation of on-site features other than nature or bio-diversity. (geology, geography, hydrology, etc)
 - d. Historical
5. Site Maintenance: Is there evidence of a systematic or routine maintenance of the developed facilities
6. Tourism Promotional Activities: Is there recognition of the international tourist by multi-lingual signs, or international convention for signage (brown 3M distinctive signs).
7. Professional Capacities: Do the on site staff have a working knowledge of the park, why it is a park, or natural history/biodiversity?
8. Site Governance Issues: Is the managing agency/authority/entity/company recognized at the site?
9. Managerial Organization: Is there a management structure that sets priorities, obtains funds, and/or manages the site.

10. Effectiveness: Do plans for the area exist and are they obviously being implemented, and is implementation effective.
11. Antiquities: Is there recognition of prehistoric cultural values by interpretation or protection?
12. Water Control/Erosion: Is there any effort to protect on-site or non-point water pollution or erosion issues?
13. Karst: Is there recognition of off-site water management issues associated with karst aquifers?
14. Forest Health/Protection: Are there forest protection issues (fire, insects, disease) that could impact visitor experience or safety?
15. Subsistence Livestock Grazing: Is there any visible issues of subsistence livestock grazing issues, or potential conflicts that would detract from visitor expectations or safety?
16. Invasive Species: Is there any obvious invasive species issues (weeds, noxious plants) that may be issues.
17. Historical Sensitivities: Are there any obvious historical issues (shrines) that may provide a management issues at the site?
18. Wildlife: Are there any dangerous wildlife species (bears, snakes, wild boars) that may provide visitor conflicts, safety issues or concerns

D: Forest Recreation Sites – Maintenance Best Practices

The following is a list of general site maintenance best management practices (BMP) standards to address the initial assessment maintenance and facility findings. They are intended to initiate a process of facility maintenance upgrades and improvements over time

To go along with this approach, three different levels of implementation are identified that generally apply to what are the individuals responsible at the 3 protected areas and forest recreation sites.

Development and practical use of these BMPs makes assumptions from limited observations and interviews about the users (clientele), maintenance organization/sector, on-site personnel, and objectives for the park.

1. The sites are regional in scope and support recreation users that are local citizens and citizens of the metropolitan area of Sarajevo.
2. The international tourist will eventually find these areas eventually through marketing and information distribution.
3. When shown new ways of maintaining or development of facilities, management will assure follow through and implementation.

General Best Management Practices:

Each area has some type of management structure which also guides the development of budgets. Projects (which are generally one-time funding for a specific activity or development), appear to undergo a much different budget development track depending on the availability of funds, and the opportunity for partnerships (NGO's or international cooperators).

- I. Minister/Director: The person responsible for allocating funds and giving managerial direction to all the sites in the area. Also, could be the person who sets policy and sets objectives for the forest recreation sites.
- II. Manager/Administrator: The person responsible for supervising/directing the site manager and the maintenance crew.
- III. Site Manager: The individual responsible for the site, and may be located at the site or responsible for a number of sites.
- IV. Worker: A person on site who is responsible on a day to day basis for the basic tasks for maintenance at the forest recreation site.
- V. Maintenance Crew: Composed of individuals with the capability, capacity and tools to make necessary repairs to existing facilities at the time of visiting the site.

General Best Management Practices Template:

1. Management: The responsible governmental authority is clearly identified, able to make decision, allocate resources and implement the decisions of plans to accomplish the maintenance

objectives. Management is to assure completion of actions assure these best management practices are implemented by on the ground actions at the forest recreation sites.

(Minister/Director)

2. Critical standards and tasks management: If the standards are not being met, management takes an action to assure the standards occur. Management has a systematic way of determining whether the BMPS are being met through inspection (direct) observation and information gathering, or information obtained from an outside source (indirect). (Minister/Director)
3. Worker Safety Issues: Training must be given to all forest workers on issues of health, protective measures around blood borne pathogens, and precautions on disease issues. Additional work should be undertaken to determine what standards should be in place to meaningful address risk of disease to forest workers who collect trash and maintain recreation sites: (Minister/Director)

HEALTH & CLEANLINESS

4. Toilet Facilities (when present) will be inspected daily and maintained/cleaned/re-supplied daily. (workers)
5. To keep humans free from unhealthy exposures to human waste, the waste is removed immediately upon discovery or notification. (Maintenance Crew)
6. Garbage does not exceed the capacity of the garbage containers. (Worker)
7. Garbage surrounding and underneath containers is removed as well as garbage within the containers. (Worker)
8. Developed sites are free of litter and domestic animal refuse. (Worker)
9. Graffiti is removed within 48 hours of discovery or notification. (Worker)
10. Toilets and garbage locations are clean and free of objectionable odor. (Worker)
11. When Pack In-Pack Out program is used, the message is prominently displayed and any accumulations of trash are removed within 24 hours of discovery or notification. (Site Manager)
12. All other facilities are kept clean. (Worker/Maintenance Crew)
13. Vegetation at the site is removed if vandalized or it represents a safety hazard to the user. (Worker).

SAFETY & SECURITY

14. During periods of most intense use (holidays or weekends) someone is visible at the site performing maintenance or clean up (as compared to doing maintenance during the week when no one is there.) (Site Manager)
15. A site safety inspection is completed annually. Documented high risk conditions are corrected prior to use. (Site Manager)
16. High risk site conditions that develop during the use season are mitigated, or the site is closed. (Site Manager/Worker)
17. Employees, volunteers, and partners have dependable communications. (Site Manager.)
18. On-site Presence is sufficient to provide visitors a sense of security. Minimally, this includes posting a standard governance entrance sign, and government/company/agency employees visiting the site are wearing uniforms and driving vehicles displaying proper local government shield. (Site Manager)
19. Patrols for an appropriate level of law enforcement occur. (Site Manager /Director/Minister)

RESPONSIVENESS

20. The site entrance is well marked, easily found, and the visitors feel welcome. (Site Manager)
21. Information boards look fresh, professional, are uncluttered and contain appropriate current/seasonal information. Multi-lingual services are provided as needed. (Site Manager)
22. Personnel, including seasonal employees and volunteers, demonstrate good customer service practices. (All personnel)

OVERALL APPEARANCE AND CONDITION OF FACILITIES

23. Restrooms are functional and in good repair and clean.. (Site Manager)

24. All facilities look maintained, and all vandalism or graffiti is removed within one week of discovery/occurrence. (Site Manager)
25. Signs and bulletin boards are well maintained and contain current and relevant information for the forest visitor. (Site Manager)
26. Major Vandalism is corrected or mitigated within one week of discovery or notification. (Site Manager)

E: IUCN Protected Area Management Categories

Category Description (IUCN, 1994)

- I Strict Nature Reserve/Wilderness Area: Protected area managed mainly for science or wilderness protection.
 - Ia Strict Nature Reserve: Protected area managed mainly for science.
 - Ib Wilderness Area: Protected area managed mainly for wilderness protection.
- II National Park: Protected area managed mainly for ecosystem protection and recreation.
- III Natural Monument: Protected area managed mainly for conservation of specific natural features.
- IV Habitat/Species Management Area: Protected area managed mainly for conservation through management intervention.
- V Protected Landscape/Seascape: Protected area managed mainly for landscape/seascape conservation and recreation.
- VI Managed Resource Protected Area: Protected area managed mainly for the sustainable use of natural ecosystems.