



## TRANSBOUNDARY PROTECTED AREAS MANAGEMENT: EXPERIENCES FROM W-ARLY- PENDJARI PARKS IN WEST AFRICA

Isidore O. Amahowé<sup>1,2\*</sup>, Laurent G. Houessou<sup>3</sup>, Soulemame Ashanti<sup>2</sup> and Aristide C. Tehou<sup>2,3</sup>

\*Corresponding author: ogoudje.amahowe@gmail.com

<sup>1</sup> Direction Générale des Forêts et des Ressources Naturelles (DGFRN), Ministère de l'Environnement et de la Protection de la Nature (MEPN), Bénin

<sup>2</sup> Projet W-Arly-Pendjari, United Nations Office for Project Services (UNOPS)

<sup>3</sup> Laboratoire d'Ecologie Appliquée, Faculté des Sciences Agronomiques, Université d'Abomey-Calavi, 01 BP 526 Cotonou, Bénin

### ABSTRACT

This paper presents the experiences of W-Arly-Pendjari (WAP) parks in West Africa to improve conservation strategies with the support of partners within a transboundary management system. The W Regional Park and WAP complex conservation, funded respectively by the European Union and the Global Environment Facility (GEF) projects since 2001, has allowed the development of a technical basis for the transboundary approach and enhanced the effectiveness of protected areas management. This paper outlines the results of these projects including the harmonization of management strategies and the establishment of the regional patrol and biodiversity survey systems which have strengthened threat reduction. An important tool developed through the cooperative management is the establishment and implementation of a regional coordination system that brings together the three countries and all stakeholders involved in WAP protected areas management. A GEF small grant system was also implemented to support rural activities that contribute to biodiversity conservation and improve riparian communities' livelihoods in the WAP complex. The transboundary management of the complex is an experience which provides excellent lessons and deserves to be supported by natural resource funding to ensure the main management objective - the long-term conservation of biodiversity.

**KEYWORDS:** transboundary, W-Arly-Pendjari, management effectiveness, GEF, livelihoods, biodiversity survey, regional coordination system

### INTRODUCTION

The cooperative management of shared resources between countries is an interesting model that needs to be promoted to enhance the sustainable conservation of protected areas. Several examples of cooperative action between two or more contiguous protected areas separated by international and sub-national boundaries have been implemented worldwide (Sandwith et al., 2001; Wolmer, 2003). In Africa, as in other parts of the world, many protected areas extend across national borders and their sustainability cannot be effective in the absence of collaborative management systems (Wolmer, 2003). As underlined by Sandwith et al., (2001), transboundary protected areas play an important role in co-operation and provide tools to improve peace among countries. Moreover, the importance of transboundary protected areas is widely recognized for effective biological conservation since they offer wide ranges to large herbivore and carnivore populations whose viability

are area dependent. In this regard, Blanc et al., (2003) reported that in West Africa, the W-Arly-Pendjari (WAP) transboundary complex shelters more than half of the West African elephant population and argued that the success of transboundary protected area management will increase the success of elephant species conservation.

The WAP complex is the largest and most important continuum of terrestrial, semi-aquatic and aquatic ecosystems in the West African savannah belt. It covers about 50,000 km<sup>2</sup> including riparian areas (UNDP, 2004). The complex contains a number of protected areas, including the transboundary W Regional Park based around a w-shaped bend in the river Niger, the Pendjari National Park in Benin and Arly National Park in Burkina Faso (Figure 1). It is divided between Benin (43 per cent of the area), Burkina Faso (36 per cent) and Niger (21 per cent) (UNDP, 2004). It is recognized for its

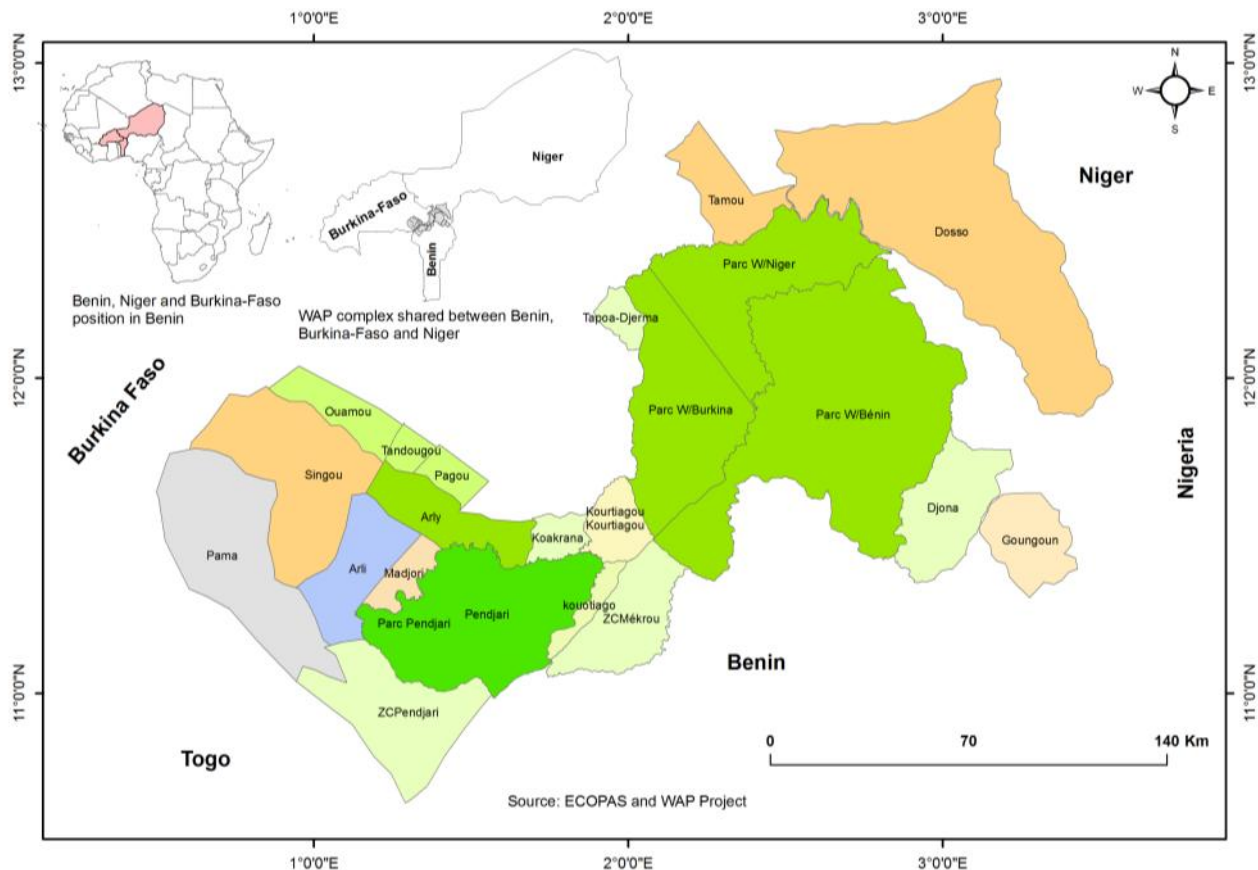


Figure 1: Map of W – Arly – Pendjari complex

high importance for the biodiversity conservation of West Africa savannahs by the United Nation and Development Programme (UNDP, 2004). The part of W Park that lies in within Niger was added to the World Heritage list in 1996. However the area's biodiversity still faces various threats such as agricultural encroachment, transhumance within parks, poaching, uncontrolled bushfires, siltation and pollution of surface waters, climate change and variability, and unsustainable harvesting of Non Timber Forest Products (NTFPs), timber and fish overexploitation (UNDP, 2004).

An initial analysis of management issues in the WAP protected areas highlighted the low involvement of the local population in decision-making and management implementation, the lack of management capacity of parks managers and the inequality of management experience and capacities between the protected areas in the complex (UNDP, 2004). Diagnostic analysis also showed differences in policies and strategies between the three countries concerning the shared biological resources (UNDP, 2004). There was a clear need therefore for dialogue and experience sharing and harmonized management tools (institutional, juridical and technical) for successful coordinated action across the countries involved. The regional approach of the

WAP complex management, envisioned by the managers and decision-makers, was therefore to reduce threats and improve biodiversity of the WAP protected areas by the harmonization of management tools and approaches and to develop successful cooperation between all stakeholders involved in the WAP parks management.

This regional vision began in 2001 with the European Union (EU) project *Ecosystèmes Protégés en Afrique Soudano-Sahélienne* (ECOPAS) that supported the W Regional Park—a transboundary park across Benin, Niger and Burkina Faso (ECOPAS, 2005). The initiative continued with the support of the Ecosystem Management project, WAP-Global Environment Fund (GEF), from 2010 to 2013. In 2012, the *Programme d'Appui aux Parcs de l'Entente* (PAPE) began which also focuses on transboundary protected areas management and is currently ongoing. In addition to W Regional Park, Arly and Pendjari National Parks, this last programme also includes Oti-Mandori parks in Togo.

To date there has been no summary of the experience gained from this regional approach of transboundary protected area management within the WAP complex in order to assess the sustainability of the approach in biodiversity conservation. This paper aims to fill this gap.

## THE W-ARLY-PENDJARI COMPLEX INSTITUTIONAL AND MANAGEMENT FRAMEWORK

One challenge for transboundary management is the different protected area management structures in the three countries involved. In Benin the *Centre National de Gestion des Reserves de Faune* (CENAGREF) is the national office in charge of W park in Benin and Pendjari parks; in Burkina Faso and Niger the protected areas in the WAP complex are governed by two different national institutions. One of the objectives of the WAP-GEF project was therefore to establish the technical and institutional basis of the cooperative management of the complex. The project elaborated the official documents relative to these structures and the process of sign-off by the different governments involved is ongoing. The documents provide the framework for international cooperation for the sustainable management of the complex and define the stakeholders and their roles and responsibilities in the management of the WAP complex.

The management structures of the WAP complex are the Ministry Committee of Orientation (CMO) and the Technical Committee of Control (CTS). All the decisions are taken by the CMO which is directed by the ministers in charge of protected area management of the three countries (Figure 2). The CMO plays the role of the steering committee for the project at regional level. Its main mission is to define the general orientation for project management. It analyses the project activities and directs the activities with respect to the global project objectives and outcomes. In addition to this regional committee each country has a National Committee of Project Steering which brings together

twice a year the protected area and national administration to validate and evaluate the work plan of the project at national level. An important asset of this institutional framework is the fact that it is permanent and all the technical and financial partners and conservation project activities are directed by this regional framework established and recognized by the three countries.

At national level, each park in the complex is directed by a national administration of park management which implements field management actions with close involvement of local association and private entities. In Benin, local associations have been involved in park management decision since 1996 in Pendjari and 1999 in W Park. In Burkina Faso, local communities are organized in village committees called Wildlife Management Committee (CVGF = *Comité Villageoise de Gestion la Faune*) and are involved in protection and hunting activities. The wildlife management system is a partnership between private entities, local communities and the government. In Niger, local communities named Local Land Commission (COFOB = *Comité Foncière de Base*) participate in wildlife management activities but are not so well organized.

- The regional management of WAP is supported by a number of national, regional and international laws: International conventions of Rio de Janeiro on Environment and Sustainable Development (United Nation Convention on Biological Diversity, United Nation Convention to Combat Desertification, United Nation Convention on Climate Change) in 1992

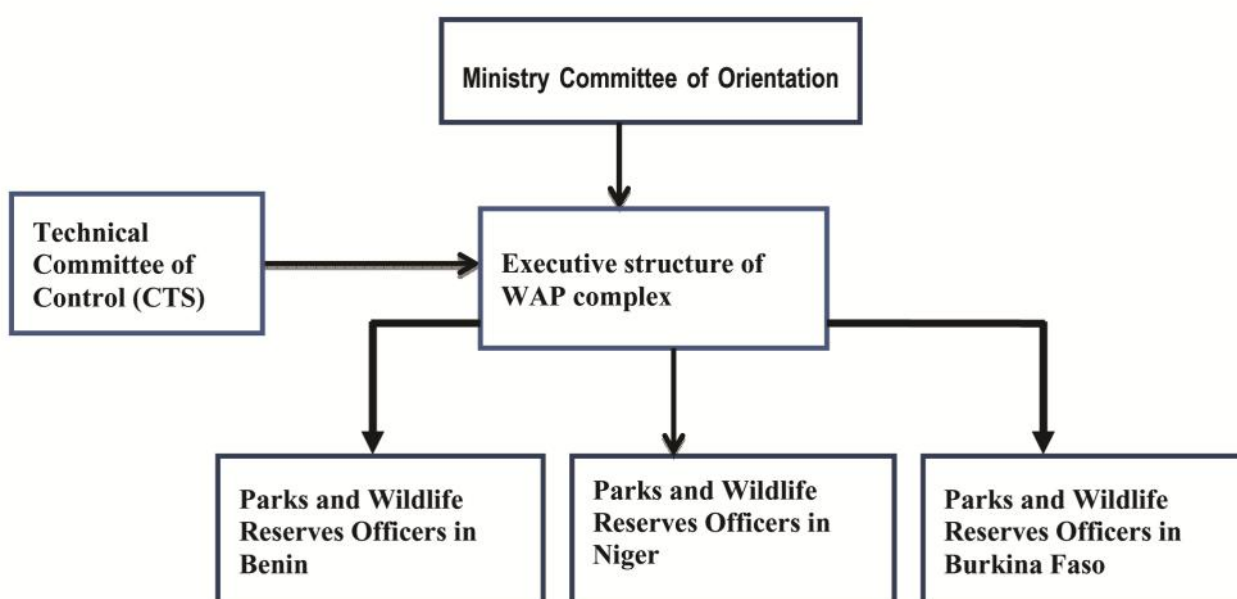


Figure 2: Flow chart of the regional complex W-Arly-Pendjari

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1973
- Ramsar Convention on Wetland in 1975
- Convention on Migratory Species (CMS) (Convention of Bonn) in 1979
- World Heritage Convention in 1972
- Agreement on W regional management with the support of the EU
- Tripartite agreement on the struggle against poaching between Benin, Burkina Faso and Niger in 1986
- Economic Community of West African States (ECOWAS) agreement for transboundary transhumance in 2004

Overall, all these conventions and agreements strengthen the cooperative management of the WAP complex protected areas and biodiversity conservation.

### ECOLOGICAL POTENTIAL

The WAP complex includes nineteen ecological sites distributed in three protected area groups (W, Arly and Pendjari). Several factors support the importance of the WAP complex: (i) WAP protected areas represent about 25 per cent of the sub-region's savannah habitats, (ii) WAP protected areas are acknowledged as the most significant remaining area for elephant conservation in West Africa (Bouché et al., 2004) and they also protect more than 370 bird species, 94 insect species, 80 fish species and various species of reptiles and amphibians (UNDP, 2004). Many of these species can only be found today in West Africa in the WAP protected areas. WAP protected areas are also critical for the conservation of the last Sahelian and Sudanese mammals' population. More than 60 mammal species have been listed, among which are elephants (*Loxodonta africana*), buffalos (*Syncerus caffer*), waterbucks (*Kobus defassa*), buffalo's kobs (*Kobus kob*), topi antelopes (*Damaliscus korrigum*), bubals (*Alcelaphus buselaphus major*), giraffes (*Giraffa camelopardalis*), hippopotamuses (*Hippopotamus amphibius*), roan antelopes (*Hippotragus equinus*), lions (*Panthera leo*), cheetahs (*Acinonyx jubatus*) and a variety of monkeys (olive baboon (*Papio anubis*), patas (*Erythrocebus patas*), green monkeys (*Cercopithecus aethiops*)). The presence of supposedly missing or rare species such as cheetah and leopard has recently been demonstrated (Henshel et al., 2012). The presence of the African wild dog continues to be discussed among parks managers and scientists. According to White (1986), the WAP vegetation belongs to Sudanian biogeographical zone with presence of riparian forest, grass savannah, woodland and tree/shrub savannah (see Appendix 1).

### SOCIO-ECONOMIC SITUATION

There are more than 340 villages within 25 km of the WAP complex. The rainfall in the WAP complex is higher than in central and northern Burkina Faso and Niger, so the area is considered of high productivity for agricultural migrants and cattle transhumant (UNDP, 2004). However, high levels of poverty and rapid population growth result in increasing threats to natural resources, including poaching, overgrazing, uncontrolled fishing and agricultural encroachment within the protected areas. Transhumance is a major concern for wildlife conservation within the reserve since it contributes to wildlife habitat degradation. Before the implementation of ECOPAS from 2002 to 2008 W Park (mainly on the Benin side) was illegally occupied during the dry season (December to April), with cattle breeders coming from neighbouring Nigeria, Niger and Burkina Faso. Today, although transhumance still persists in the region, its magnitude inside the W Park has gradually decreased since the parks' administrations have enhanced boundary control and communication strategies with the help of ECOPAS (see below for details); this strategy is extended to Arly and Pendjari Parks through the WAP project. Regarding poaching, the phenomenon is diffused and park managers struggle daily to overcome this issue in association with local wildlife associations. Cotton cultivation emerged in the 1990s as the most important activity within the riparian area of the WAP complex, especially in Burkina Faso and Benin. The cotton production is encouraged by the two governments who provide farmers with technical support such as fertilizers, pesticides and tractors to improve their capacity. It also provides essential farmer's income. Unfortunately, cotton cultivation threatens biodiversity conservation due to the use of pesticides and land cleaning for its cultivation (Clerici et al., 2006; Houessou et al., 2013).

Overall, it should be observed that the attitude of the bordering population toward resources conservation in the protected areas has improved positively with the increased involvement in parks management activities of local people and the sharing of generated incomes.

### ACHIEVEMENTS OF W PARK TRANSBOUNDARY MANAGEMENT: ECOPAS PROJECT

The ECOPAS project ran from 2001 to 2008. The overall objective of ECOPAS was to reverse the processes of natural resources degradation by preserving the biodiversity of W Park for the benefit of the populations bordering the reserve. Specifically the project aimed to (i) better valorize (i.e. give a value to) natural resources in order to release more benefit from their sustainable



**Promoting beekeeping in Banikoara for sustainable conservation of biodiversity and local population livelihood enhancement, Benin Republic (West Africa) © Isidore O. Amahowé**

use; and (ii) promote mechanisms for the equitable sharing of the benefits arising from sustainable use of natural resources. The main activities implemented by the project were: combating transhumance and poaching inside the protected area, promotion of income-generating activities for the populations around the park, insuring participatory management, the valorization of the park through ecotourism and ecological restoration utilising monitoring and research activities.

As noted above an important issue was regional transhumance inside the parks' boundaries and thus a major objective was to define strategies for sustainable use of pastureland around the park in order to lessen grazing pressure in W (Kagone, 2004). This vision was implemented through joint action by the three countries Benin, Niger and Burkina Faso. An ad hoc committee on transhumance management was established composed of deputies from each country. This committee defined five regional transhumance corridors (see Appendix 2) around W Regional Park crossing Benin, Niger and Togo, developed regional strategies for communication/

sensitization toward transhumance issues and to set up pastureland monitoring in the park. Before the implementation of the programme, W Park was densely occupied by cattle herds and its degradation was a great concern. An important achievement of ECOPAS has been the removal of cattle breeders from inside the park and the progressive restoration of the grazing land and wildlife habitat.

As for transhumance, ECOPAS has developed a regional patrol system to combat poaching inside the reserve. Through a collaborative patrolling system, park guards in each country worked together and exchanged experiences and knowledge. This strategy helped to increase the capacity and the effectiveness of protection activities at the regional level.

In each country park managers helped developed income-generating activities at the periphery of the park in order to overcome poverty within surrounding populations and to lessen pressure on the park's resources. In this regard, ECOPAS supported local

population activities which were compatible with sustainable conservation of biological resource of the park such as bee keeping and shea butter production. Moreover, local populations were closely involved in park management activities through local wildlife association in Benin, wildlife conservation Committee (CVGF) in Burkina Faso and local land commission (COFOB) in Niger. In Benin for instance, park managers return annually 30 per cent of the income generated by hunting zones to the wildlife associations for local initiatives such as building school classrooms and health centres, forage purchase, etc in order to improve local population livelihoods. The fund is also used by local wildlife associations to compensate for human wildlife conflict, such as helping farmers' who are victims of fauna damage in their fields and for population sensitization for the sustainable conservation of the park. Management activities in the W region were also supported by several research projects which aimed to improve the global comprehension of ecological functioning and biodiversity conservation issues in W (Clerici et al., 2006; Bouyer et al., 2007).

Overall, the transboundary management experience of W Regional Park under ECOPAS was the first time that the three national administrations willingly cooperated on the management. This initiative led to a regional agreement involving the three countries to manage W Regional Park together and focus on:

- The protection and valorization of natural, archaeological and cultural heritage
- Harmonization of policy and management strategies of the protected area with respect of individual interests in each country
- Promoting participatory and co-management of natural resources with emphasis on the sharing of incomes from management activities

The impact of ECOPAS for transboundary protected area management in the field was noticeable since the initiative helped to reverse wildlife habitat degradation induced by transhumance in the park, to combat poaching through regional strategies and to lessen local population pressure on the park through income-generating activities and their involvement in management activities. Unfortunately, however at the end of the financial support to the park the administration failed in several management issues and it became difficult to ensure minimum protection actions. This raised the insight of the importance of the implementation of a sustainable financing system that could support activities of essential management beyond the life of project led activities.

## ACHIEVEMENTS OF WAP: GEF PROJECT

The aim of the WAP-GEF project is the enhancement of long-term biodiversity conservation in the WAP complex. The project began in 2010 with regional and national workshops and developed on much of the work carried out by the ECOPAS project across the complex by tackling anthropogenic threats (e.g. transhumance, poaching, agriculture, etc.). Through supporting frequent consultative meetings of stakeholders involved in park management at local and regional level, the WAP project enhanced the partnership between the key stakeholders including park managers, local associations, private partners managing the contiguous hunting zones and technical and financial partners.

The WAP project also contributed to local communities' livelihood through financial support to local associations which were involved in activities respectful to biodiversity. A total of 13 micro-projects were elaborated by the biodiversity local group with the technical support of WAP Experts. The micro-projects were developed on ecological tourism and beekeeping activities in Benin, pastureland management and beekeeping activities in Niger, NTFP development (Shea butter processing) and bush meat valorization in Burkina Faso. The total budget of these micro-projects was over US\$420,000 supported primarily by the GEF with the remaining funding coming from local associations (see Table 1 for details of all the projects). In addition to the funding, training was provided to local association members to improve their knowledge on the development of activities respectful to biodiversity conservation. It should be noted that despite the efforts made by the WAP project, the support was still insufficient to meet the need of all the riparian villages.

The WAP project also worked to increase the awareness of the local population on the global importance of biodiversity in the WAP complex through a strong communication strategy using local radio, sensitization of local authority and environmental education for primary school students in the riparian villages. Institutional communication was produced for literate public and partners. A training plan realized with technical assistance from IUCN significantly increased the capacity of protected areas managers. Trainings was conducted on management tools such as the Management Effectiveness Tracking Tool (METT), Financial Scorecard (FSc), Matrices of Capacity Development (MDC), data base management, Geographical Information Systems (GIS), analytical accountancy management in protected area administration, sustainable financing mechanism and



**Capacity building for park guards to develop a cooperative patrol system implemented between Benin, Burkina Faso and Niger (West Africa) © Isidore O. Amahowé**

anti-poaching and transhumance within the protected areas. All these helped park managers within the transboundary area to harmonize their outlook on key management issues and working strategies.

A framework for cooperative patrol systems was designed for the three countries to exchange experiences and harmonize research techniques to track poachers. Regional training was organized to enhance guards' knowledge on litigation management and on laws related to nature conservation in general and wildlife management in particular. The cooperation in patrol activities reinforces and facilitates litigation management between parks administration, and protection officers help each other in litigation when offenders come from a neighbouring country. These cases are frequent with cattle herders arrested in W Park in Benin coming from Niger, whilst most poachers arrested in Niger and Burkina Faso are Bariba from Benin (Amahowé, 2007).

The WAP project has conducted a collaborative census of elephant in W Regional Park. This census was planned for all the WAP protected areas but was not possible due to helicopter availability and census planning being impacted by instability in the West Africa region (in particular Mali) and other internal issues. All of which highlight how socio-political instability impacts on wildlife conservation activities. The result from this census showed that elephant population within W Regional Park was 761 individuals (Coefficient of variation CV: 53 per cent), buffalo 3,991 (CV: 32 per cent) and roan antelope 2,757 (CV: 8 per cent) (Bouché et al., 2012). A carnivore census was carried out in the whole WAP complex in collaboration with the PAPE and WAP projects and the NGO Panthera. This study estimated lion populations at 311 ( $\pm 188$ ) individuals, of which 148 ( $\pm 87$ ) lions where in Benin, 147 ( $\pm 88$ ) in Burkina Faso and 15 lions ( $\pm 12$ ) in Niger (Henschel et al., 2012).



A group of elephant counted through the aerial census of May-June 2012 © WAP-Project

A geographical database is under construction for all three national administrations involved in WAP protected areas management. This database is recognized as an important tool to aid good management of protected areas data in order to easily generate information that can help managers take efficient decision for biodiversity conservation at a regional level. The WAP project has also established a website with links to the existing parks' websites and others partners to allow the access of information of WAP protected areas and other information that could increase the parks' visibility ([www.complexewap.org](http://www.complexewap.org)).

#### **PAPE PROJECT: CONTINUING ACTIVITIES**

Based on the important insights and outputs gained from the ECOPAS and WAP projects, cooperative management of transboundary protected areas in West Africa is now be continued by the PAPE project with funding from the EU. PAPE covers the WAP complex plus Oti-Mandori Park in Togo. The project started in 2012 and continues to reinforce WAP Project activities.

#### **LESSONS GAINED FROM COOPERATIVE MANAGEMENT OF WAP**

The long-term funding by these three linked projects for the cooperative management of transboundary protected areas in the WAP complex is an opportunity for different

partners to build a robust network of experience sharing among parks managers across borders and create a bridge between different management system in different countries governing shared biodiversity. This cooperative experience for shared resource management has impacted management in many ways. An assessment of the main strengths, weaknesses, opportunities and threats (SWOT) was carried out to identify any continuing obstacles to transboundary management and understand the ways forward in enhancing the effectiveness of this cooperative management within this outstanding West Africa savannah belt. A summary of the SWOT is given below:

#### **Strengths**

- Agreement of regional and concerted management of the WAP complex involving three countries: Benin, Burkina Faso and Niger
- Involvement of local communities in this management approach
- Establishment of a regional institution to direct conservation actions within the WAP protected areas
- Capacity enhancement of local community and development of activities respectful of biodiversity conservation
- Establishment and support of regional patrol activities in the WAP complex

- Establishment of regional planning system involving all conservations partners working toward the long-term conservation of biodiversity in this complex
- Establishment of a regional biodiversity database and WAP website that can help facilitate access and information sharing among park managers

### Weaknesses

- High social and cultural diversity among managers and people living around the WAP complex
- Differences in the laws governing protected area resource management in the three countries
- Different structures and institutions in charge of protected area management in each country, which sometimes makes the implementation of management difficult
- Unequal management capacity in the protected areas of the WAP complex

### Opportunities

- The possibility for the whole WAP complex to be registered as World Heritage
- The availability of the United Nations Office for Project Services (UNOPS) to lead a new project to support sustainable management within the local communities through the development of infrastructure respectful to environment
- The ongoing support of the EU and UNDP for the WAP complex

### Threats

- The anthropogenic threats of poaching, transhumance and agricultural encroachment
- High population increase around the complex
- Absence of a sustainable funding system

**Table 1: Micro projects funded by the WAP Project around W-Arly-Pendjari protected areas**

Title and beneficiaries	Description	Funding (US\$)			
		Total	Requested	In kind	Other
<b>BURKINA-FASO</b>					
Shea fruits processing for butter and soap: Women's association 'TINFI' of Kotcahari	Equipment provided to the association; enhancement of technical and organizational capacity	12,530.26	10,046.80	2,483.45	
Shea fruit processing for butter and soap: Women's association 'FANDIMA' of Pama	Improvement of material and financial means; enhancement of organizational capacity	12,840.94	10,272.75	2,568.19	
Bush meat processing before sale to increase its value: Wildlife management association of Pama	Enhancement of organizational capacity; equipment provided; improvement of sales system and link with restaurant	25,883.63	20,706.91	5,176.73	
<b>Total:</b>		<b>512,54.84</b>	<b>41,026.47</b>	<b>10,228.37</b>	
<b>BENIN</b>					
Honey commercialization: Woman association 'Sé Sourou' of Founougou	Improvement of honey quality: improvement of the quality of honey packaging; promotion of honey	17,709.00	13,173.82	4,535.18	
Ecotourism development at the waterfall site of Tanougou: TINFI Association 'luttons pour progresser'	Capacity building; development of ecotourism reducing anthropogenic pressure on the resources of Pendjari Biosphere Reserve	13,173.82	10,551.16	2,622.66	
Beekeeping development at Batran: Beekeepers association of Batran village	Enhancement of beekeeper marketing capacity; labelling of honey production; promotion of beekeeping by radio broadcasting	17,759.44	14,150.26	3,609.18	
Ecotourism development at the periphery of the Djona hunting zone (W Park – Benin)	Improvement of the visibility of Alfakoara site destination and offer of services to tourists: e.g. lodging, food service, art objects, etc	10,107.33	9,804.71	2,723.53	
Improvement of the production of beekeepers village association of Dokossouan: Beekeepers village association of Dokossouan	Enhancement of individual and organizational capacity of beekeepers; provided beekeepers with appropriate equipment	18,741.12	14,146.22	4,594.90	
<b>Total</b>		<b>77,490.72</b>	<b>61,826.18</b>	<b>1,8085.46</b>	
<b>NIGER</b>					
Restoration and management of grazing area of 'Pete Edî': Breeders association 'ballagaljawi' of 'Pété Edî'	Improved management of the grazing area and carrying capacity of the grazing area 'Pete Edî'	20,935.88	13,995.92	6,939.96	
Improved production of the beekeepers association 'Forgay Ban': Beekeeper association of Kareykopto	Bee keeping equipment; enhancement of technical and organizational capacity of beekeepers	8,622.80	6,982.32	1,640.47	
Improved production of the beekeepers association 'Tamou' the main site of honey production in the district of Tamou	Supply equipment and technical capacity building; improvement of the quality of production and performance of the beekeepers and beekeeping site management	33,945.38	23,350.75	2,904.19	806.97
Improvement of the beekeepers association 'Djamwali': Beekeeper association of Weygorou village	Bee keeping equipment; enhancement of technical and organizational capacity of beekeepers	8,641.56	5,796.08	2,038.51	7,690.44
Increasing the value of honey and by products to the women's association of Tamou (W Park – Niger)	Improve access to the required inputs for increasing the value of honey and by products; increasing technical knowledge; ensuring local demand in soap, pomade and candle produced from honey and beeswax	9,959.55	7,790.30	2,169.24	
<b>Total</b>		<b>82,105.18</b>	<b>57,915.39</b>	<b>15,692.38</b>	<b>7,690.44</b>
<b>Total Amount USD</b>		<b>210,850.75</b>	<b>160,768.03</b>	<b>44,006.21</b>	<b>8,497.42</b>

## CONCLUSION

In West Africa, the W-Arly-Pendjari complex is one the largest protected areas shared between Benin, Niger and Burkina Faso. The complex has been under transboundary management since 2001 through the involvement of the managers of the three parks in cooperative management strategies for biodiversity conservation. Through this cooperative approach, regional tools and management system have been established and are functioning at the complex level. The assessment of this ongoing regional approach made in this paper indicates the progress made but it is clear that a sustainable financial system must be urgently established to provide resources for essential management activities to be sustained.

## APPENDIX 1

Shrub savannah/tree savannah are mainly represented by *Combretum collinum*, *Combretum nigricans*, *Combretum molle*, *Terminalia avicennioides*, *Terminalia laxiflora*, *Terminalia macroptera*, *Acacia sieberiana*, *Acacia hockii*, *Isobertinia doka*, *Isobertinia tomentosa*, *Anogeissus leiocarpa*, *Balanites aegyptiaca*, *Ziziphus mauritiana*, *Daniellia oliveri* and *Burkea africana*. In riparian forest along the rivers, species occurring are: *Acacia sieberiana*, *Diospyros mespiliformis*, *Borassus aethiopum*, *Mitragyna inermis*, *Kigelia africana*, *Cola laurifolia*, *Sizygium guineense*, *Antidesma venosum*, *Carapa procera*, *Voacanga africana* and *Antiaris africana* (Lamarque, 2004; ECOPAS, 2005).

## APPENDIX 2

Details on transhumance corridors are provided in Convers et al (2008). The corridors are:

- Corridor 1: Fada N'Gourma – Pama – Porga – to Togo or to Tanguiéta – Natitingou – Djougou – Bassila
- Corridor 2: (a) Sebba – Kantchari – Diapaga – Namounou - Pagou – Porga – to Togo or to Tanguiéta – Natitingou – Djougou – Bassila; (b) Torodi – Makalondi - Kantchari – Diapaga – Namounou - Pagou – Porga – to Togo or to Tanguiéta – Natitingou – Djougou – Bassila
- Corridor 3: Say – Tamou – Botou – Tapoa Djerma – Kotchari – Kondio - Kérérou – Toura – Goumori – Kerou – to zone Alibori supérieur
- Corridor 4: Say – Kirtachi – Boumba – Monsey – Karimama – Karigui – to Goungoun.
- Corridor 5: Birni N'Gaouré – Dosso - Gaya – Malanville – Guéné - to Goungoun

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## ABOUT THE AUTHORS

**Isidore O. Amahowé** is a wildlife and park manager working as the National Biodiversity Expert of W-Arly-Pendjari project in West Africa.

**Laurent G. Houessou** is a researcher at the Laboratory of applied ecology, University of Abomey-Calavi (Benin). His main field research focuses on biodiversity and natural resources conservation.

**Soulemane Ashanti** is Expert in Communication at W-Arly-Pendjari project in West Africa.

**Aristide C. Tehou** is a wildlife manager working as the National Coordinator of W-Arly-Pendjari project in West Africa.

## RESUMEN

Este artículo presenta las experiencias del complejo de parques W-Arly-Pendjari (WAP) en África occidental para mejorar las estrategias de conservación con el apoyo de socios dentro de un sistema de gestión transfronteriza. El W Regional Park y el complejo de conservación WAP, financiados desde 2001 por la Unión Europea y el Fondo para el Medio Ambiente Mundial (FMAM), respectivamente, ha permitido el desarrollo de una base técnica para el enfoque transfronterizo y ha incrementado la eficacia de la gestión de las áreas protegidas. En este trabajo se describen los resultados de ambos proyectos, incluyendo la armonización de las estrategias de gestión y el establecimiento de los sistemas regionales de patrullaje e inventario de la biodiversidad, que han consolidado la reducción de amenazas. Una herramienta importante desarrollada a través de la gestión cooperativa es la creación e implementación de un sistema de coordinación regional que reúne a los tres países y a todas las partes involucradas en la gestión de las áreas protegidas de WAP. También se implementó un sistema de pequeñas donaciones del FMAM para apoyar las actividades rurales que contribuyen a la conservación de la biodiversidad y a mejorar los medios de subsistencia de las comunidades ribereñas en el complejo WAP. La gestión transfronteriza del complejo es una experiencia que ofrece excelentes lecciones y merece ser apoyada por los fondos para recursos naturales para la consolidación del principal objetivo de gestión –la conservación a largo plazo de la biodiversidad.

## RÉSUMÉ

Cet article présente les enseignements des parcs W-Arly-Pendjari (WAP) en Afrique de l'Ouest pour améliorer les stratégies de conservation, avec le soutien de partenaires au sein d'un système de gestion transfrontalier. Le parc régional W et la conservation du complexe WAP, financés respectivement depuis 2001 par des projets de l'Union européenne et du Fonds pour l'environnement mondial, ont permis de développer une base technique pour l'approche transfrontalière, et ont mis en avant l'efficacité d'une gestion des aires protégées. Cet article souligne les résultats de ces projets, notamment l'harmonisation des stratégies de gestion et l'établissement des systèmes de patrouille régionale et d'études sur la biodiversité, qui ont amélioré la réduction des menaces. Par ailleurs, un important outil mis au point par la gestion de la coopérative est la création et la mise en œuvre d'un système de coordination régionale qui rapproche les trois pays et tous les acteurs impliqués dans la gestion des aires protégées WAP. Un système de prêts de petite envergure a également été mis en place par le FEM pour soutenir les activités rurales contribuant à la conservation de la biodiversité et améliorant les moyens d'existence des communautés riveraines dans le complexe WAP. La gestion transfrontalière du complexe est une expérience permettant de tirer des enseignements très instructifs. Elle mérite d'être soutenue par un financement pour les ressources naturelles, afin de garantir le principal objectif de la gestion – la conservation à long terme de la biodiversité.