

**The management of national parks in Algeria: Overview, means
and constraints.**

Case of national parks in the North.

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Abstract:

The objective of this article is to establish an overview of the management of Algerian national parks (ANP), in terms of human and financial resources, which reflects both their functioning and the commitment of the State in favor of the protection and enhancement of the natural heritage.

In this context, we have formulated the following main questions:
How is the management of NAPs implemented in terms of human and financial resources?
What are the constraints encountered?

To do this, we will opt for a study of eight national parks in northern Algeria; these are EL-Kala, Chr ea, Djurdjura, Theniet-El-Had, Belezma, Gouraya, Taza and Tlemcen, based on an analytical and descriptive study.

Keywords: National parks, human resources, financial resources, natural heritage; constraints.

JEL Classification: L78; M00; O15

Introduction

The management of national parks is completely different from that of other territories; their main objective is above all the protection of nature. The good management of these specific territories is conditioned by the implementation of practices and strategies within the framework of the public policy for the management of protected areas. In Algeria, the latter falls within the framework of the policy for the protection of the environment and natural heritage defined from the 1980s (MATET, 2009). It materializes through the establishment of specialized administrative structures for conservation, as well as financial, human and regulatory resources to achieve protection and rational management of our natural heritage and ensure its sustainability for the benefit of future generations (Abdelguerfi & Ramdane, 2003 a).

In this sense, our country has integrated the global objectives relating to the preservation of nature since the ratification of several important conventions at the regional and international level. Since then; at the national level, several actions have been undertaken to honor its commitment, a vast network of protected areas has been created, including about ten national parks (Meribai, 2011). The latter are intended for the protection of the natural heritage through specific and adapted management, which has significant implications for the State in terms of financial, human and material resources.

The main objective of our study is to give an overview of the management of national parks in Algeria, by dealing with the question of the means mobilized, which illustrates the capacity of the State to define a real protection policy.

In this context, we have formulated the following fundamental question: "What are the means that are put in place within the framework of the management of national parks in Algeria? And what are the obstacles encountered? ". This main question is broken down into several other sub-questions:

- What is a national park? How are national parks managed in Algeria?
- What are the means mobilized within the framework of the management of national parks in terms of financial resources?
- What means are mobilized within the framework of the management of national parks in terms of human resources?

To answer this questioning, we will opt to study eight national parks in northern Algeria (ANP); these are the national parks of EL-Kala, Chr ea, Djurdjura (PND) and Theniet-El- Had, Belezma, Gouraya, Taza and Tlemcen. And to answer our problematic, we put forward the following main hypothesis:

- The management of national parks in Algeria faces the problems of financial and human resources, which represent real constraints to the achievement of the main missions of national parks.

1- Definitions:

1-1 National parks and protected areas:

There is one organization called the international Union for conservation of nature, known as the IUCN that help to look after protected area globally. UICN definition of protected area "A clearly defined geographical space, organized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural value" (Baker & Sutarman, 2020). In other words, a protected area is a location which has a clear boundary. It has people and lows that make sure nature and that people can benefit from nature without destroying it (Huberd, 1998).

The UICN has defined six protected area categories from strict natural reserve to protected area with sustainable of natural resources. National parks belong in categories' II (NCM, 2019).

The idea of national parks was an American invention with the invention of Yellowstone park in 1887 (Oberdorfer, 2001). National parks is a large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual scientific, educational recreational and visitor opportunities. There primary objective, is to protect natural biodiversity with its underling ecological structure and supporting environmental process and to promote education and recreation (IUCN, 2008). They have different and management objectives, these opportunity for the area to be developed for recreation, education and tourism (Huberd, 1998).

All parks are created by society for a purpose which has varied across time and geography; each park emerged with a particle societal ethos and organization. Parks are for community events, social function and athletic

competition, adding to this, recreation is an important use of parks and protected area (Eagles & McCool, 2002)

Protected area is defined by IUCN as a clearly defined geographical space recognised, dedicated and managed through legal or other effective means (IUCN, 2019). Protected areas are managed mainly for ecosystem protection and recreation (IUCN, 2007). In Algeria they are defined by article 5 of law n°11-02 of February 17, 2011 relating to protected areas in the context of sustainable development as: “*A natural space of national interest established with the aim of protecting the integrity of one or more ecosystems. Its objective is to ensure the conservation and protection of unique natural regions because of their biological diversity while making them accessible to the public for educational and recreational purposes*”. (Law n° 11-02, 2011).

These different definitions converge to highlight the role of protected areas and national parks in nature protection and economic and social development.

1-2- National parks and natural heritage

The notion of natural heritage appeared in the 1970s, in the context of environmental protection. In other words, the term “natural heritage” refers to the natural features, geological and physiographical formation, and delineated areas that constitute the habitat of threatened species of animals and plants, as well as natural sites of value from science, conservation, or natural beauty perspective. This heritage is inherited from past generations and is maintained in the present, before being bestowed on future generations (UNESCO, 2009). National parks are natural heritage sites dedicated to the protection of nature and natural resources. The national parks is the most common method for management of conservation areas (IUCN, Categories, objectives and criteria for protected areas. Online from: <https://portals.iucn.org/library/sites/library/files/documents/1978-003.pdf>. Accessed on: 08-09-2022, 1978)

Effective management is a necessary condition for all park national, that are legally designed to meet biodiversity conservation and other natural heritage. They are governed by the laws of each state, with is up to create national and provide them the means necessary for their operation (Oberdorfer, 2001). Professional resource managers can influence resource management in national parks (Lopoukhine, 1985)

In other words, the natural heritage corresponds to the various natural sites which do not result from human action, which present an exceptional value that has become a heritage. In this context, national parks appear as territories for the protection and enhancement of natural heritage par excellence, for this several means are mobilized to ensure rational management of this protected natural heritage.

1-3- The missions of a national park

National parks are often an important part of local natural and cultural heritage and identity, in addition to their recreation, education, health and tourism benefit, a potential source of economic development that contribute to human well being and poverty reduction (UNEP, 2015). In Algeria, national parks have several objectives; these are defined by decree; according to article 3 of decree n° 83-458 of July 23, 1983, fixing the standard statute of the national parks, which defines the missions devolved to the national parks which are the following: (Decree n° 83-458, 1983)

- The conservation of any natural environment of particular interest against any artificial intervention and the effects of natural degradation;
- The initiation and development in relation with the authorities and organizations concerned, of all leisure and sports activities related to nature;
- The establishment of a tourist infrastructure in the peripheral zone;
- Observation and study of the development of nature and ecological balance, as well as participation in scientific meetings, colloquia and seminars relating to its purpose.

National parks are thus territories placed under special protection to protect them from any irrational exploitation of the natural heritage. These are the easiest category of protected area management to implement, for the achievement of objectives related to protection, nature tourism, scientific research, environmental education and sustainable development. Achieving these various objectives requires a management strategy.

Conservation strategies recognize the need to include people as part of the system. However, national park management is not just limited to conservation strategy, national park management includes a widespread variety of management activities such as essential like park system planning land protection, natural resource management fire management, water resource management, air resource management, geologic resource management, sound cap and lights cap management), cultural resource

management (archeological resource, historic structures). It is clear that in each park the emphasis of management should be adapted to the need of the park. (Oberdorfer, 2001)

2- Historical overview on the creation of national parks in Algeria

The creation of national parks in Algeria was envisaged in 1921, on the initiative of the French government which created the first national park in Algeria in 1921. Between 1923 and 1929; thirteen national parks have been created for nature conservation purposes, and above all for the development of metropolitan tourism. To this end, the efforts of the colonial empire through the creation of these national parks were disrupted during the two world wars, and during the Algerian war of liberation (Meribai, 2011). After independence, our natural heritage was in a very important state of degradation, the national parks classified during the colonial era were downgraded until the moment when the Algerian regulations had allowed their creation again by decree in July 1983 (Kerbiche & AknineSouidi, 2022).

To deal with this situation, the Algerian government has become aware of the need for emergency intervention through an effective policy that takes charge of all the problems related to the protection of nature and the preservation of the environment. Environment, in particular through the creation of several other national parks and other protected areas.

3- National parks and world conservation congresses:

Biodiversity and natural heritage needs to be protected, valorize and used sustainably, the benefit that it provides to society require that effective measures should be managed appropriately. The IUCN world conservation congresses contribute to a subset of managing natural environment for human, social and economic development. The IUCN congresses have produced several key international environmental agreements including the Convention on Biological Diversity (CDV), the convention and on international Trade in Endangered Species (CITES), the world heritage convention and Ramsar Convention on Wetland (Baker & Sutarman, 2020).

In the same context, in 1995, the World Bank stressed that protected areas constitute the cornerstone, which each country must take into account to achieve objectives of sustainable use and protection of natural resources,

in compliance with commitments, compared to the international convention on biological diversity (CDV) (Chaoui, 2013)

National parks have become increasingly important in national and international efforts. Algeria is committed to participating in the movement for the protection of natural and cultural heritage through its accession and ratification of various conventions, such as that of Paris which concerns the protection of historic and natural sites and monuments, that of 'Rio' on biological diversity, and that of the 'UN' on desertification. (Abdelguerfi & Ramdane, 2003 a).

Our country 'Algeria' has ratified several other conventions relating to conservation such as the Ramsar Convention on Wetlands of International Importance in 1982 (PNUD/FEM, 2014) and several other conventions which have been ratified successively since 1982 (MATET, 2009); Convention on Wetlands (11 December 1982); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention in 1982); African Convention on the Conservation of Nature and Natural Resources (known as the Algiers Convention), ratified in 1982.

With these various conventions the Algerian government recognizes the need for the protection of the natural heritage, especially with the creation of a network of protected areas, in particular, the national parks. In general, the idea of creating national parks began to germinate in the 1970s with the first national park in 1972, in the absence of any legal anchoring; it is the Tassili National Park with a unique cultural vocation, created on the MADR initiative (Meribai, 2011).

And since then, it was not until 1983 that the first text on the environment was promulgated, represented by law 83-03 of February 5, 1983, which establishes the general principles of management and protection of the environment. This law will be supplemented by decrees n° 83-458 establishing the standard status of national parks. The creation of National Parks was carried out in several phases spread over thirty years, today our country has 11 national parks spread over the national territory; 8 in the north of the country, a steppe zone and two in the far south (Bessah, 2005). The Tassili National Park is classified as a World Heritage Site, and that of Aheggar as a Biosphere Reserve (MAB), like Djurdjura, El Kala, Chréa, Gouraya and Taza (Abdelguerfi, 2003a).

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The dimensions of the areas and date of creation of the National Parks are represented in the following table:

Table number (1): List of Algerian national parks, area dimensions and date of creation

Parks	Location	Area dimension (ha)	Decree and date of creation
Theniet El had	Tissemsilt	3 424	83-459 du 23.08.1983
Djurjura	Bouira/Tizi Ouzou	18 550	83-460 du 23.08.1983
Chr�ea	Blida/M�ed�ea	26 587	83-461 du 23.08.1983
El Kala	El Taref	76 438	83-462 du 23.08.1983
Belezma	Batna	26 250	84-326 du 03.11.1984
Gouraya	Beja�ia	2 080	84-327 du 03.11.1984
Taza	Jijel	3 807	84-328 du 03.11.1984
Tlemcen	Tlemcen	8 225	93-117 du 12.05.1993
Djebbel Aissa	Naama	24600	03-148 du 29.03.2003
Tassili	Illizi	11 400 000	87-88 du 21.04.1987
Aheggar	Tamanrasset	45 000 000	87-231 du 03.11.1987
Total area		56 589 961	

Source: Established by the authors from Abdelguerfi, A 2003.

The total area of the 11 national parks in Algeria is 56,589,961 ha, or a proportion of 23.73% of the national territory, on the other hand, the ANPs of the North have a total area of 189,961 ha, or 0.08% of the territory. National parks, the southern national parks have an area of 56,400,000 h, i.e. a proportion of 23.73% of the national territory (Abdelguerfi & Ramdane, 2003 b). In Algeria, each national park is created by decree: Decree n 83-03 fixing the standard status of national parks and n  87-143 of June 16, 1987, fixing the rules and methods of classification of national parks and natural reserves has allowed the creation of 10 parks in the space of 10 years from 1983.

4- The management of Algerian national parks (ANP):

4-1- Mode of management and operation

According to the information collected from the DGF, the ANP constitute the fundamental framework of the protection of nature, they are public establishments of an administrative nature (EPA) endowed with financial autonomy and intervention on the limits of their territories, and the ANPs in the North have the MADR as administrative supervisor and the GMF as technical supervisor. However, the ANPs in the South are under the supervision of the Ministry of Culture. According to the same source, the ANPs are headed by a director and administered by an orientation council. If the ANPs are under different supervision, the regulations are national and unique, applied by all the structures whatever the supervision. The legal instruments for the creation of ANPs are contained in law 83-03 of February 5, 1983 relating to the protection of the environment supplemented by decree n°83-458 fixing the standard status of national parks and n°87-143 of June 16, 1987 laying down the rules and procedures for classifying national parks (PNUD/FEM, 2014). According to Decree 83-458 of July 23, 1983 on the standard status of national parks, given the state of degradation of Algerian national parks and the global trends in favor of sustainable development, their management has adopted a strategy based on a participatory approach to management, through the reform of the management of national parks governed by law n° 11-02 of February 17, 2011, relating to protected areas in the context of sustainable development.

4-2- The management of Algerian national parks in terms of human and financial resources

After independence, the ANPs were deprived of financial, technical and human resources and managed in an anarchic manner. This situation changed gradually, until the advent of a first management plan during the 2000s. From this date their management began to experience a marked improvement and moved towards thoughtful and planned management (Meribai, 2011). In accordance with Law 11-02 of February 17, 2011 relating to protected areas in the context of sustainable development: *“A management plan defines the guidelines for the protection, enhancement and sustainable development of the protected area. It determines the means required for its implementation. In particular, it specifies the following elements: the characteristics and valuation of the assets; strategic and operational objectives; the means of protection and management to be implemented; the short and medium term intervention program; the research program and the protection measures of the protected area”*. The ANPs have known four (04) management plans (MP); PG (1999-2004) and PGII (2005-2009); the PGIII (2010-2014) the PGIV (2015-2019).

To carry out a national policy for the rational management of natural resources and for national parks to be tools for the protection of natural heritage, real engines of economic and social development; sufficient funding is needed. In this context, the ANPs benefit from the budgets to ensure their operation; in particular from the 2000s within the framework of a more rigorous management of the national parks, several actions have been undertaken. Globally; the budgets allocated to the parks remain low and vary from one park to another (Abdelguerfi, 2003a). In terms of human resources, the ANPs face a lack of staff in qualitative and quantitative terms.

-Experimental: As a research method, we opted for an analytical and interpretative method based on the collection of information from the administrations responsible for the management of ANPs in the North, namely the Ministry of Agriculture (MADR) and the general management of forests (GMF)

5-The means of the Algerian national parks ANPs of the North: current data and diagnosis

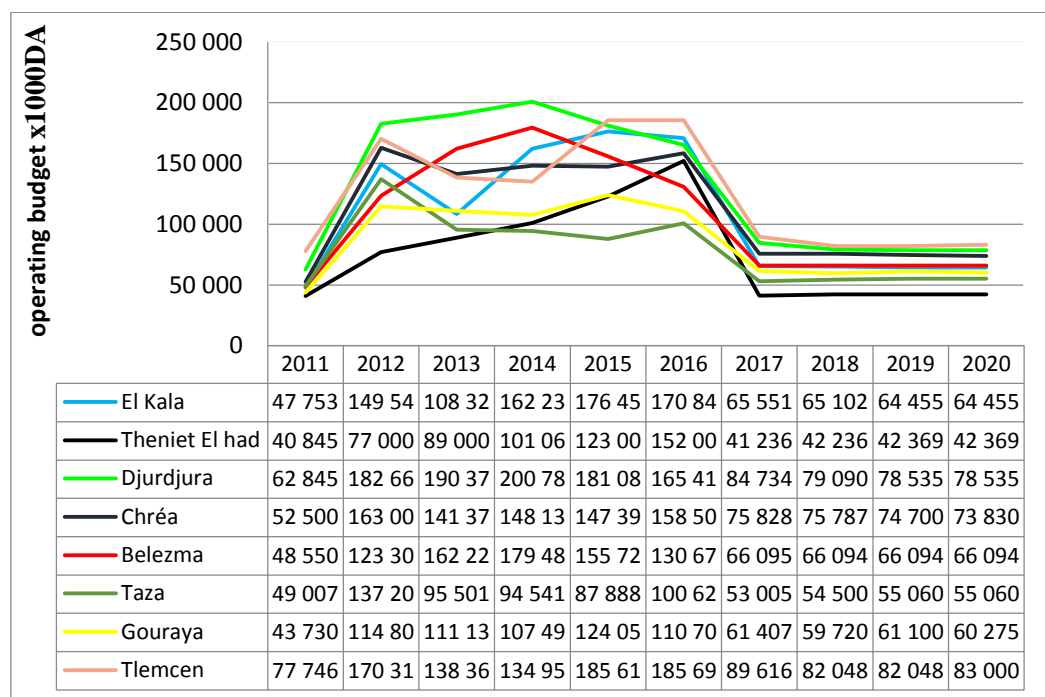
Within the framework of the various management plans of the ANPs of the North; great efforts have been made on the human and financial level.

5-2- The management of the ANP in terms of financial means

According to the information collected at the MADR level, the ANPs had human and financial resources, but the budget allocated to the ANP does not make it possible to meet the needs and concerns of the park, the current economic situation that the country is going through had as a result, several key projects and programs have been frozen.

According to the same source of information, the ANPs operate according to national legislation with full support from state subsidies through an operating budget; more than 80% of which is intended for the payment of salaries, the rest is intended for the operation of the services. They also benefit from equipment budgets for the acquisition of equipment and the construction of management premises. From 2011, the equipment budget is integrated into the operating budget for all national parks.

Figure number (1): Evolution of the operating budget of ANPs (2011-2020)-U X 1000DA



Source: prepared by the authors from internal documents of the Ministry of Agriculture

The figure shows that the resources allocated by the State to the operation of the ANPs are more or less similar. Also some deviations can be noticed. The best supervised or covered park in terms of land resources is the Tlemcen Park with the highest budget, with the exception of the years 2011, 2013 and 2014 when the PND benefited from the highest budgets, knowing that these two last parks occupy the first places in terms of surface area and number of employees.

However, the least supervised park is the Theniet El had park, also knowing that the latter occupies the last place in terms of the number of employees and surface area. In general, the evolution of the budgets of the ANPs of the North allows us to distinguish two periods:

A period of increase (2011-2014) during which the majority of the PNAs in the North experienced a marked increase in their financial means with the exception of the three parks which experienced a slight decrease in their budgets; Taza and Tlemcen for 2013 and 2014.

A period of decline (2015-2019) where all the ANPs marked a significant reduction in their budgets, which represents a constraint for

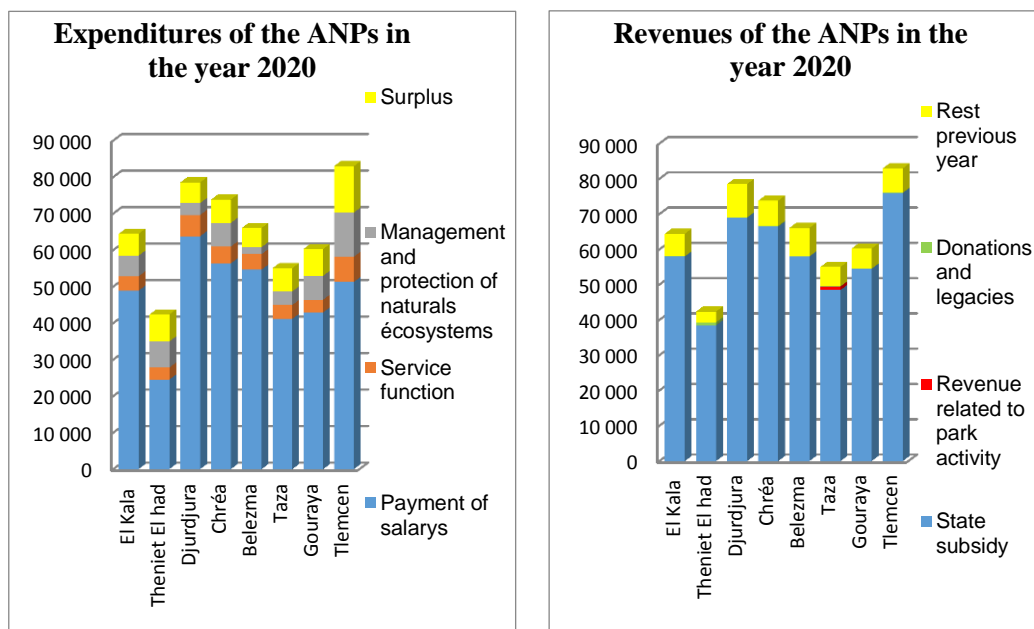
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management and a brake on the achievement of the various planned objectives.

On the financial level, Article 23 of Decree No. 13-374 of 9-11-2013 establishing the standard status of national parks under the responsibility of the Minister in charge of forests specifies that: *"The budget of the national park includes a title of receipts, and an expense account. As revenue: State subsidies; contributions from local communities; contributions from public or private institutions and bodies in accordance with laws and regulations; donations and legacies; all other revenue related to the activity of the national park. With regard to expenses: operating expenses; capital expenditure; all other expenses necessary to achieve the objectives of the national park"* (Decree n° 13-374, 2013). For better understand the situation of the budgets of the national parks studied, it is wise to analyze their budgets in terms of income and expenditure, based on the information collected at the level of the MADR as shown in the following figure:

Figure number (2): Revenue and expenditure of ANPs for the year 2020



Source: prepared by the authors from internal documents of the Ministry of Agriculture

In terms of revenue; the figure shows that the ANPs of the North depend on State subsidies at more than 80%. The share of subsidies is 91.65% for the parks of Tlemcen, 90.86% Theniet El had and 90.41% for Gouraya and 90.07% for Chr ea.

The share of the other parks, El Kala, Taza, Djurdjura and Belezma, are respectively 89.98%, 88.07%, 87.85% and 87.75%. We also note that the share of revenue linked to the activity of PNAs is either non-existent or very low (Theniet El had). We also note the absence of any other resources, despite the vocation of national parks for the promotion of several activities related to nature (ecotourism, crafts, ecological agriculture).

In terms of expenditure, the examination of the budgets of the ANPs of the North for the year 2020 shows that the wage bill represents nearly 2/3 of the expenditure, the rest (1/3) is devoted to non-personnel expenditure (function of services and management and protection of natural ecosystems), with the exception of Theniet El Had park where the share of these expenses exceeds the share of salary payments, but this is explained by the very small number of its employees (44 employees).

By calculating the percentages for each park, we note that almost all of the parks' expenses concern staff expenses (payment of salaries and others), 82.67% for Belezma 81.21% for Djurdjura 75.80% for El Kala and Chr ea with 76.33% and Taza with 74.7% and 71.25% for Gouraya, Tlemcen with 61.78% and nearly 57.91% for Theniet El had.

Expenditure related to service functions remains very low for all parks and is approaching from one park to another (less than 10% of operating budgets); nearly 8.33% for Tlemcen 7.73% for Theniet El had, and 7.40% for Djurdjura nearly 6.91% for Taza, more than 6.11% for El Kala, Chr ea 6.22% and 6.43% for Belezma against 5.75% for Gouraya. However, some discrepancies can be noted concerning the expenses related to the function of management and protection of ecosystems. 16.91%, 14.57% and 10.85% are the shares granted for this function respectively in the Theniet El had, Tlemcen and Gouraya parks. El Kala and Chr ea devote respectively 8.80% and 8.77%. On the other hand, the two parks Djurdjura and Belezma devote only 4.15% and 2.92% respectively. This represents a constraint for the preservation of the ANPs.

Overall, the financial means of all the PNAs in the North for the year 2020 are represented by 523,618,000 DA, of which the share of State subsidies is 469,000,000 DA, i.e. more than 94.72%, the share of revenue

linked to the activities of the ANPs is 0.19%, which testifies to the dependence of the ANPs on State subsidies.

5-2- Management of the ANPs of the North in terms of human resources:

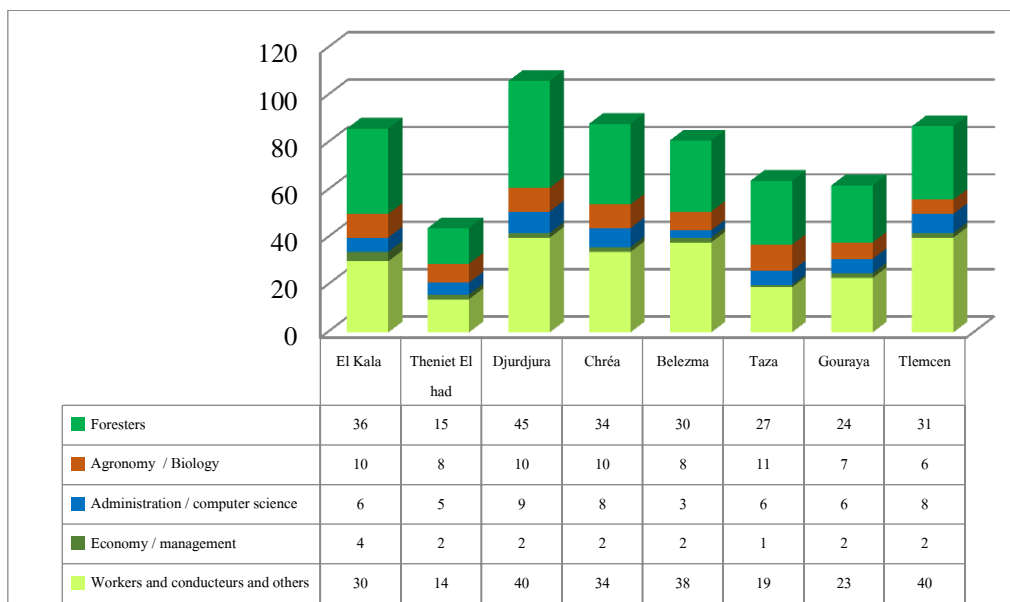
5-2-1- ANPs human resources:

The ANPs total a workforce of 618 people. To analyze the situation of the latter on the management plan, we made a comparison of the workforce by calculating the ratio (number of employees per 1000 hectare), The comparison shows that the best supervised national park is Gouraya Park, which has 20p/1000h. Then, Theniet El had, Tlemcen, and Taza with 10p/100h Chr ea, Belezma with 3p/1000h, Djurdjura with 5p/1000h. The least supervised park is that of El Kala with 1p/1000h. The average coverage of PNAs in the North is 8.25 p/100h, which remains very low if we compare it with the ratios of other countries throughout the world (Kerbiche & AknineSouidi, 2022)

5-2-2- Breakdown of ANPs human resources by training profile:

To analyze the number of national parks studied by training profile, based on the analysis of data collected from the Ministry of Agriculture, we have tried to classify them into 5 categories, as shown in the figure next:

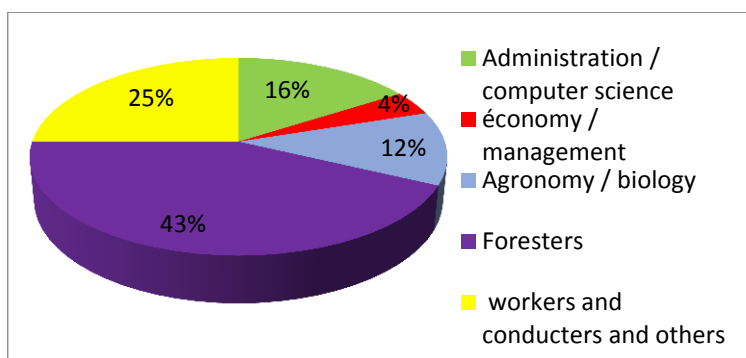
Figure number (3): Human resources of ANPs by training profile



Source: prepared by the authors from internal documents of the Ministry of Agriculture

Qualitatively: We note that the training profile is dominated by foresters and driver workers and others... The figure shows the absence of specialists in the field of natural resource management and protected areas, the profile of training closest to this field remains agronomy, biology (ecology, environment) and foresters. The education profile of all ANP staff is shown in the following figure:

Figure number (4): education profile of all ANP employees



Source: prepared by the authors from internal documents of the Ministry of Agriculture

The figure shows that the training profile of ANPs in the North is dominated by foresters (43%), and driver workers (25%), administrators with 16%. The training profile closest to this field remains agronomy, biology, ecology, environment with only (12%). The figure also shows the absence of specialists in the field of natural resource management and protected areas.

Conclusion

In this article, we have tried to form an overview of the management of national parks in Algeria through the various means mobilized. The results of our study show that several efforts have been made in the management of Algerian national parks since independence until today, especially from the 2000s, however several challenges have been met:

On the financing plan, we mainly mention the weakness and the variation of the budgets allocated to the national parks of the North, as well as the dependence of the national parks on the financial plan of the State subsidies; which represents a constraint to the achievement of the objectives set within the framework of the various management plans. In general, the evaluation of the means of the national parks of the North shows a mismatch between the means and the missions of the parks; most of the budgets are intended for the payment of salaries, few resources are devoted to the achievement of the main mission of the parks, namely the protection of the natural heritage.

In terms of human resources, we discover a lack of high-level management, and in relation to the management of national parks and natural resources. In this regard, the management of national parks requires more than foresters; multidisciplinary management and specialists in the field of nature protection become a necessity.

The human resources and the nature of the financing of the national parks of the North represent real management constraints and major challenges for the sustainable management of these territories and also a threat to the sustainability of their natural heritage.

In general, it is noted that the national parks of the north do not have the means necessary for the realization of their missions, in particular in the field of the management and the protection of the natural ecosystems; in this context it is recommended:

- The improvement of human resource capacities in the field of nature protection and the management of protected areas, to compensate for the lack of specific supervision and improve training profiles.
- Reinforcement of financial capacities and diversification of funding sources, in particular by encouraging activities related to nature according to the potential of each national park (eco development; tourism, crafts, etc.), to both mitigate the lack of financial resources and enhance the heritage of national parks.
- develop the legal framework according to the specificities of each national park, to enable the national parks to accomplish their missions.

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