



Project LIFE09/NAT/ES/000516  
Conservation of *Oxyura leucocephala* in  
Murcia Region. Spain  
<<http://www.lifemalvasiamurcia.es>>

## POST LIFE CONSERVATION PLAN

LIFE09/NAT/ES/000516 Project

“Conservation of *Oxyura leucocephala* in Murcia Region. Spain.”



ENGLISH VERSION





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## 1. INTRODUCTION, JUSTIFICATION AND OBJECTIVES

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The white-headed duck (*Oxyura leucocephala*) is an **Endangered** bird (IUCN, 2013) of the *Anatidae* family, whose presence in Murcia Region dates back to year 2000. However, the milestone to promote the conservation of this waterfowl at regional level is its reproduction since year 2005. This rare event took place in three artificial wetlands linked to wastewater treatment plants in Murcia Region: Campotéjar Lagoons (Molina de Segura) in 2005, Moreras Lagoons (Mazarrón) in year 2006 and Salinas de Alhama de Murcia Lagoons in 2008.



**Image 1. White-headed duck in Campotéjar Lagoons, Molina de Segura**

In this background, it was necessary to take action over the needs of further knowledge and management of the species, as well as the improvement and adequacy of the artificial wetlands where the species breeds. For this reason, the General Direction of Environment of Murcia Region, in collaboration with local Councils of towns where these artificial wetlands are located, requested funds to LIFE Programme, the European Union financial instrument supporting environmental and nature conservation. The result was the financial support by the European Commission for the LIFE09/NAT/ES/000516 project, entitled “Conservation of *Oxyura leucocephala* in the Murcia Region. Spain.”



Relevant commitments of this proposal include the development of a Post LIFE Conservation Plan. Through this, part of action E.5, we pretend to plan and implement conservation measures to give continuity to actions initiated with this project, assuring the long term conservation of this endangered waterfowl in regional territory.

The main objective of this Post LIFE Conservation Plan is to provide an adequate planning which allows expanding the objectives and maintaining the results achieved with the implementation of the LIFE09/NAT/ES/000516 project.

This main objective can be subdivided in three specific objectives:

1. To detail necessary measures, as well as their schedule, in a 5 year timescale.
2. To establish and coordinate responsibilities among those involved in the implementation of the plan.
3. To establish an estimate of investments and funding sources to carry out such measures.



## 2. SUMMARY OF RESULTS

After the ending of the project (four years for which it was intended, plus a further extension period of one year), the main results obtained are:

**Table 1. Main results achieved with LIFE project actions**

ACTION		RESULT
A1	Recovery Plan for the White-headed duck in Murcia Region	In public exposition phase since June 5th 2014. Pending of definite approval in first term of 2016
A2	Declaration of breeding habitat as Special Protection Area (SPA)	Moreras Lagoons, Campotéjar Lagoons declared as SPA. Salinas de Alhama Lagoons included in Saladares del Guadalentín (Guadalentín salt marshes) SPA. New Natura 2000 surface of 140,51 hectares
A3	SPA Management plans	Management plans pending of integrated processing in Natura 2000 planning
A4	Study of water resources	Improved knowledge of breeding wetlands for the white-headed duck. Establishment of compatibility guidelines
C1	Increase of physical habitat availability in Campotéjar Lagoons	Enlargement of the species habitat in 4,89 ha (26% increase) and water volume in 78.0000 m <sup>3</sup>
C2	Increase of physical habitat availability in Moreras Lagoons	Availability of a new water body of 1,9 ha. Increase of floodable surface in a 71% and water volume in 38.000 m <sup>3</sup>
C3	Increase of physical habitat availability in Alhama de Murcia lagoons	Availability of a new pond of 2,44 ha (68% increase) 2-2,5m deep (40.000 m <sup>3</sup> )
C4	Correction of power lines	More than 1 km of power lines protected with anti-collision devices in Campotéjar Lagoons
C5 C6 C7	Regulation of public use in Campotéjar Lagoons, Moreras Lagoons and Salinas de Alhama Lagoons	Availability of an interpretative trail of low environmental impact in Campotéjar and Salinas de Alhama Lagoons. Availability of equipment and infrastructures for the enjoyment of nature (bird observatories) and environmental education (visitor center in Campotéjar)
C8	Monitoring work	Better understanding of <i>Oxyura leucocephala</i> distribution in Murcia Region and deeper knowledge of ecological parameters associated to its habitat.



ACTION		RESULT
C9	Control of <i>Oxyura jamaicensis</i>	Control of ruddy duck and its hybrids during the project. Elimination of 1 hybrid specimen in 2011
C10	Evaluation and monitoring of possible epidemiological problems	Detection and resolution of an outbreak of botulism in wetlands targeted by the project during summer of 2012
D1	Dissemination in schools and social organizations	More than 8,300 participants in this action (3,800 in Molina de Segura, 1,240 in Mazarrón, 3,237 in Alhama de Murcia and 100 at regional level)
D2	Awareness and information program to the local population	Technical personnel at water treatment plants that supply wetlands, irrigation communities and users of waters and regional/local administration in each municipality engages in the project
D3	Information Day on water treatment and conservation of White-headed duck in Murcia Region	Attendance of 28 people. Streaming of 65 people (93 participants in total)
D4	Working Group of White-headed Duck in Spain	Organization of two meetings with the Working Group
D5	Staff training, Exchange of experiences and information with other projects	Visit to similar wetlands in other regions, assistance to 4 events, conducting two training courses, training of environmental agents, attendance at two meetings with EUROPARC wetlands personnel
D6	Edition of technical publications	Edition of five monographs, two of which published in physical format. Dissemination of monographs
D7	Creation and update of a website	68.846 visits (1.141 monthly visits) 27.807 visitors (463 monthly visitors) 17.000 downloads of edited materials
D8	Informative Boards	Installation of information boards on project sites
D9	Layman report	Publishing and printing. Dissemination of the report.
E1	Project management	Effective management, publication of monthly and annual reports, monitoring of actions
E2	External supervision	Supervision and monitoring of project activities by third parties
E3	Legal and financial supervision	Monitoring the implementation of the project
E4	Financial Audit	Financial Audit report
E5	Post LIFE Conservation Plan	Editing
E6	Networking	Collaborative meetings in other regions, continued collaboration with other LIFE projects



Based on the above results, it is possible to state that the main objective of the project, the conservation of the white-headed duck and its habitat in Murcia Region, consisting in wetlands of Campotéjar Lagoons (Molina de Segura), Moreras Lagoons (Mazarrón) and Salinas de Alhama Lagoons (Alhama de Murcia), as well as the specific objectives, have been successfully achieved (see Tabla 2).

**Tabla 2. Fulfillment of operational and specific objectives of the LIFE project**

OBJECTIVE	COMPLIANCE
Improve and extend the species habitat in those wetlands where it breeds.	✓
Reconcile biodiversity conservation with agricultural use of modern sewage treated water that is stored in lagoons where <i>Oxyura leucocephala</i> lives in Murcia Region	✓
Decrease threats created by anthropogenic impact in the species and its habitat.	✓
Develop a monitoring program about the species, other dependent species of these wetlands and those environmental parameters that determine their reproduction.	✓
Promote the advanced scientific research about <i>Oxyura leucocephala</i> and its reproduction habitat.	✓
Publicize the Project in Murcia Region in general, and particularly in towns where the wetlands are located.	✓
Participate and presenting the Project objectives and results in specialized work groups, congresses, conferences, etc.	✓
Guarantee the long term conservation of the species in Murcia Region, once the LIFE Project is finished	Objective of this plan



### 3. CURRENT SITUATION: ANALYSIS

The situation after finishing the project can be summarized in a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, available in Table 3.

Table 3. SWOT analysis

WEAKNESSES	THREATS
<ul style="list-style-type: none"> <li>• Need to further knowledge in very specific issues</li> <li>• Technical difficulties for the development of similar actions in other wetlands</li> <li>• Shortage of potential locations to develop actions for habitat expansion</li> </ul>	<ul style="list-style-type: none"> <li>• Shortage of funds to finance measures</li> <li>• Need for training of technicians and managers of natural environment</li> <li>• Complex administrative procedures</li> <li>• Persistent threats to white-headed duck: presence of ruddy duck, alien predator species, power lines, disease outbreaks, management problems and management of water resources.</li> </ul>
STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> <li>• Synergies and good understanding between project partners</li> <li>• Wide and active collaboration between partners and social stakeholders during the project</li> <li>• Recognition of ecological and social value of wetlands project by the public</li> <li>• Presence of infrastructures and equipment for scientific and educational use</li> <li>• Availability educational materials</li> <li>• Support of the declaration as Ramsar and SPA areas</li> </ul>	<ul style="list-style-type: none"> <li>• Forthcoming SPA management plans</li> <li>• Bulk of investments already made during the project</li> <li>• Easy integration of actions at regular functions of the entities involved</li> <li>• Very high potential for ornithological and educational tourism</li> <li>• Positive synergies between biodiversity conservation and economic development</li> <li>• Coordination of administrations involved</li> <li>• Project development and environmental education activities</li> </ul>



## 4. ACTION PROGRAM

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### 4.1. Administrative actions program

#### Action 1. Declaration of white-headed duck as *Endangered* species in Murcia Region and approval of its Recovery Plan

Complete the processing of the declaration of *Oxyura leucocephala* as an Endangered species and approval of its Recovery Plan in Murcia Region. This process was initiated through advertisement in the Official Gazette of the Community of Murcia in June 5th, 2014.

#### Action 2. Approval of SPA Management Plans

Processing SPA Management Plans for Campotéjar Lagoons, Moreras Lagoons and Salinas de Alhama Lagoons as part of the Saladares del Guadalentín (Guadalentín salt marshes) SPA. Subsequent approval.

### 4.2. Research program

#### Action 3. Study on influence of manipulation, regulation and quality of water supply from water treatment plants in populations of *O. leucocephala*

The white-headed duck in Murcia territory breeds in artificial wetlands with constant flow rate systems, contrary to what occurs in natural wetlands of Mediterranean character, influenced by drought processes during summer period.

These droughts restart the process of ecological succession, which may be positive for birds due to a higher availability of nutrients in near future. This action is intended to corroborate the findings and proposed hypotheses, to experiment whether the process of



adaptation of the water regime to natural processes have significant positive impact on birds.

### 4.3. Habitat and species conservation program

#### **Action 4. Determination of potential breeding wetlands for *O. leucocephala***

A study will be conducted, based on the knowledge acquired during the project, to determine potential territories to hold populations of white-headed duck, mostly abandoned sewage lagoons.

#### **Action 5. Evaluation of measures to improve breeding habitat in Alguazas sewage lagoon**

In 2012, the white-headed duck brood in Alguazas sewage lagoon. Necessary measures, investments and funding programs should be evaluated for the implementation of a comprehensive improvement of this wetland.

#### **Action 6. Maintenance of hydraulic infrastructure and equipment**

This action will involve the replacement of damaged items, control of the state of equipment maintenance, prevention and removal of potential clogging caused by reed intrusions, and resolving any incidence that may occur in wetlands' hydraulic infrastructure.

#### **Action 7. Increase of physical habitat for waterfowl in Moreras Lagoons**

It is proposed to build a new water body between the old gravel pit and the new lagoon in order to create a smaller pond with different hydrogeological configuration to those in the other two ponds. This would provide diversity and variability of habitat for birds. These works would include an improvement in water distribution network and hydrologic connectivity across the lagoon complex.



**Action 8. Re-vegetation of the naturalized Moreras' gravel pit (Moreras Lagoons) dam**

This work will consist of the recovery and conservation of the 500 long hillock/naturalized dam in Moreras Lagoons' old gravel pit, by replantation with native vegetation species. This will allow a lower impact by heavy floods, which are likely to occur during episodes of torrential rains (spring and autumn) in Rambla (wadi) de las Moreras. If these floods are strong enough, they could destroy the dams of this naturalized water reservoir.

**Action 9. Maintenance and replacement of anti-collision devices in Campotéjar Lagoons and installation of new devices in Salinas de Alhama de Murcia and Moreras Lagoons**

This action consists of the maintenance and replacement of defective or damaged devices previously installed in Campotéjar Lagoons. Also, new anti-collision devices should be installed in the other two SPA wetlands and their surroundings.

**Action 10. Correction of dangerous overhead electrical supports in all SPA declared wetlands**

Anti-electrocution measures will be taken in hazardous electrical supports to avoid electrocution of birds near SPA lagoons and their surroundings.

**Action 11. Management of reed in wetlands**

These management and conservation works will take place in perimeter strips of each pond in target wetlands. As this is the main refuge for birds, the management of this type of vegetation is a priority. It will be made through appropriate technical means.



#### **Action 12. Replacement and installation of artificial floating islands**

This action will focus on the replacement of vegetated artificial islands floated in each wetland through LIFE project. In addition, new ones will be installed in those wetlands where were not previously installed.

### **4.4. Public use program**

#### **Action 13. Maintenance of equipment and infrastructures for public use**

The items installed in target wetlands as part of actions C5, C6 and C7 (bird observatory, signage, interpretive trails), will be replaced when damaged or spoiled to ensure the quality of services for public use.

### **4.5. Monitoring and control program**

#### **Action 14. Monthly census for white-headed duck, ruddy duck and their hybrids, other waterfowl and environmental parameters in project wetlands**

It will be necessary to carry on a regular (monthly) monitoring of waterfowl in wetlands where white-headed duck is present in Murcia Region, to assess its population status, reproduction, the presence of ruddy duck (*Oxyura jamaicensis*), other waterfowl birds and significant environmental parameters of interest. It will be materialized in the publication of an annual monitoring report.

#### **Action 15. Monitoring of ruddy duck (*Oxyura jamaicensis*) and elimination of hybrids**

Along with monthly census, additional tracking work is required to detect the presence of ruddy duck in Murcia Region wetlands. This is especially important during breeding season of white-headed duck to avoid possible hybridizations, according to guidelines



provided by the National Control Group for the Ruddy Duck in Spain. This will allow a coordinated action at national and regional level.

#### **Action 16. Update and implementation of protocol for outbreaks of diseases**

In earlier phases of this plan, a review of the established protocols for early detection of disease outbreaks will be conducted. Amid main points to include in this review are necessary actions and safety protocols when needed by incidents, appropriate changes and updates for the protocol at regional level.

### **4.6. Dissemination, Training and Networking program**

#### **Action 17. Website maintenance**

LIFE Oxyura website ([www.lifemalvasiamurcia.es](http://www.lifemalvasiamurcia.es)) will remain operative, at least, 5 years after the ending of the project. It will include new relevant information created with the implementation of the Post LIFE conservation plan.

#### **Action 18. Continuity of environmental education and volunteering programs**

Awareness/education programs and volunteering activities will remain active by local councils. These programs will be arranged with respective municipalities, resulting in the implementation of an annual communication program.

#### **Action 19. Publication of articles in scientific and dissemination journals**

New articles detailing actions carried out by the LIFE project, conclusions and results will be published in scientific/technical dissemination journals.

#### **Action 20. Distribution of publications in regional documentary collections**

Publications generated through Action D6 (monographs) will be distributed in public libraries, general or scientific oriented, in several points of Murcia Region, as well as universities and training centers.



**Action 21. Development of technical seminars/symposiums about White-headed duck conservation**

At least, two practical seminars targeted at technical personnel, environmental police agents, natural environment managers, as well as sector professionals interested will be carried out. This will allow a better dissemination of the optimal technics and methods for management of the white-headed duck in Murcia Region.

**Action 22. Participation in events with experts from other regions**

It is proposed to participate in at least 2 events (technical days, networking, seminars, conferences, etc.) whose main theme is focused on management and conservation of wetlands and/or the white-headed duck.

**Action 23. Development of a training course about natural rehabilitation of lagooning systems**

A training course will be developed. It will be focused on advice and implementation of similar projects and initiatives to LIFE *Oxyura* project, and its target public will be water plant treatment managers and local councils. The main objective of this action is to promote natural restoration of future/current abandoned sewage lagoons in Murcia Region for conservation of biodiversity.

**Action 24. Participation in networking promoted by the Working Group of White-headed Duck in Spain**

Networking with the Working Group of White-headed Duck in Spain will continue after the end of the project, collaborating when the organization requires it.



## 4.7. Coordination and collaboration program

### Action 25. Coordination between administrations involved in the LIFE project

Annual meetings with all beneficiaries involved in post LIFE plan will be held in order to specify objectives, tasks, and implementation schedules of commitments.

### Action 26. Establishment of collaboration agreements with both public and private entities

Collaboration agreements will be settled with local councils involved, research centers, organizations/institutions responsible of water resources management, local associations and conservationist groups, etc. in order to implement and fund proposed post LIFE conservation actions.



## 5. ACTORS AND SOURCES OF FUNDING

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Main actors involved in the implementation of Post LIFE conservation plan can be divided into two different groups: project beneficiaries and stakeholders.

### 5.1. Project Beneficiaries

**Socioeconomic Promotion of the Environment Office (Oficina de Impulso Socioeconómico del Medio Ambiente, OISMA)**

As the promoter, OISMA is the main responsible for this Post LIFE Conservation Plan. This entity will be the coordinator in the implementation of the plan.

**Local Councils of Molina de Segura (Ayt. Molina), Alhama de Murcia (Ayt. Alhama) and Mazarrón (Ayt. Mazarrón)**

Local Councils of towns where the project has been implemented, as proprietaries of the lagoons' land, should guarantee a good conservation status of these target wetlands. They should include allocations in local budgets and seek funding to develop proposed actions.

### 5.2. Stakeholders

**Region of Murcia Autonomous Community**

This institution will be the responsible for the approval of Recovery and Management plans. Also, it is the main responsible to allocate budget for the implementation of subsequent actions in collaboration with local councils.



### **Water Treatment Authority for the Region of Murcia (ESAMUR)**

As responsible for the water treatment plants which supplies quality waters to wetlands, this institution will play a major role in maintenance and resolution of possible incidents. Also, this institution will play an important part in restoration and natural rehabilitation of abandoned sewage lagoons.

### **Segura River Hydrographic Confederation (CHS)**

This organism is the main responsible for rivers and watercourses management. Thus, it will provide advice about processing of measures affecting Public Hydraulic Domain.

### **Local associations**

Local associations will be an important key in the development of land stewardship actions, dissemination programs and volunteering activities in wetlands.

### **Universities and Research centers**

Through their collaboration, the plan will achieve important progress in research field concerning the ecology of target wetlands.

### **Other local Councils of Region of Murcia**

In order to facilitate restoration of wetlands in other locations different to the project ones, it will be necessary to involve local councils of towns where potential habitat is located.

## **5.3. Sources of funding**

Among the main sources of funding (see Table 4) there are budget allocations to natural environment maintenance, duties of staff beneficiaries' members, European Social Fund (ESF), European Regional Development Fund (ERDF), and European Agricultural Fund for



Rural Development (EAFRD). Other financial programs through which proposed measures could be financed include Fundación Biodiversidad aids and funds from social programs of Foundations and Banks. Finally, organized national groups could also help with funding for actions, like in case of monitoring *O. jamaicensis*.

**Table 4. Actors and funding sources for proposed actions**

ACTION	ACTORS	FUNDING PROGRAM
1	CARM	No cost
2	CARM	No cost
3	OISMA	Partnerships with research centers, ERDF, EAFRD
4	OISMA	ERDF. EAFRD. Fundación Biodiversidad,
5	OISMA	ERDF. EAFRD. Fundación Biodiversidad,
6	Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds
7	OISMA, Ayt. Mazarrón	Own funds. ERDF. EAFRD
8	OISMA, Ayt. Mazarrón	Own funds. ERDF. EAFRD
9	OISMA, Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds. ERDF
10	OISMA, Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds. ERDF
11	Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds. ERDF
12	OISMA. Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds. ERDF
13	OISMA, Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	Own funds. ERDF
14	OISMA	Own funds. ERDF
15	OISMA	Own funds. ERDF
16	OISMA	Own funds. ERDF
17	OISMA	Own funds
18	Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama, OISMA	Own funds. ERDF
19	OISMA	Own funds
20	OISMA	No cost
21	OISMA	Own funds. ERDF
22	OISMA	Own funds
23	OISMA	Own funds. ERDF
24	OISMA	Own funds
25	OISMA, Ayt. Molina, Ayt. Mazarrón, Ayt. Alhama	No cost
26	OISMA	No cost



## 6. SCHEDULE

The schedule for the development of actions is set out in Table 5:

Table 5. Schedule for Post LIFE09/NAT/ES/000516 project Conservation Plan

ACTION	SCHEDULE				
	2016	2017	2018	2019	2020
1	X				
2	X	X			
3		X	X		
4	X				
5	X				
6	X	X	X	X	X
7			X	X	
8		X	X		
9		X	X		
10		X	X		
11	X	X	X	X	X
12		X			
13	X	X	X	X	X
14	X	X	X	X	X
15	X	X	X	X	X
16	X	X	X	X	X
17	X	X	X	X	X
18	X	X	X	X	X
19	X		X		X
20	X				
21			X		X
22	X	X	X	X	X
23			X		
24	X	X	X	X	X
25	X	X	X	X	X
26	X	X	X	X	X