ACTIVITY
REPORT 2019

TOUR DU VALAT

Tour du Valat

Research institute for the conservation of Mediterranean wetlands

ACTIVITY REPORT 2019

TOUR DU VALAT

What now?

The planets seemed to be lining up. Successive reports in 2019 by the IPBES[1] and the IPCC[2] had confirmed the massive and accelerating degradation of biodiversity and the major impacts on our societies, and given increasingly alarming forecasts about the extent and the effects of climate change. These studies were corroborated by the year's climate events with record temperatures, exceptional droughts, mega forest fires, and devastating hurricanes. Finally, society, particularly young people, set in motion a veritable groundswell and showed their fierce determination to change the course of the future.

In response to these multiple warning signs, 2020 was touted to be a "super year for biodiversity" with decisive international gatherings such as the IUCN World Conservation Congress in Marseille and the Convention on Biological Diversity's COP 15 in China. It was also to be the moment of truth for climate policies at the COP26 climate talks in Glasgow where the stark reality of our current climate trajectory would be critically assessed.

But then… one of the simplest representatives of biodiversity came into the picture. Not even a butterfly wing. Simply a strand of RNA sheltered by a shell dotted with proteins. A virus unable to move by itself and only capable of surviving for a few hours outside of its host. Yet a virus that stopped humanity's frantic race right in its tracks and has starkly illustrated how immensely vulnerable we are.

A vulnerability we have created and that is further exacerbated every year by our model of development. Exploding human populations increasingly concentrated in megacities that continue to multiply, globalisation with hyperconnectivity but no solidarity, the destruction of natural habitats and human incursions into wilderness areas.

How can our health be guaranteed on a sick planet?

We have created the conditions for disaster from scratch, destroyed the self-regulation of ecosystems, profoundly altered the interactions between wildlife and its own pathogens, created epidemiological bridges between wildlife, farm animals, and human beings.

The breaking point is here. We have come to the moment at which all of the negative phenomena to which we have been drawing attention for years, catalysed by the virus, have become significant enough to cause the current crisis. The one we needed to be able to step back and question our model. It's up to us to choose: the challenges of the immediate future are tremendous. One possible path would lead us to positive changes in politics, culture, and the economy. Such a transition would enable us to build an inclusive and resilient society based on a clean, regenerative economy and veritable political collaboration. If we are unable to make this shift correctly, we will go back to the very system that failed us and experience a long-lasting economic depression based on division and political cleavages. That disaster would be the final embodiment of our failure to solve the problems linked to climate change, social inclusion, and a respectful relationship with nature.

It is up to us to readopt an ethical approach, to consider human beings as an integral part of biodiversity, to stop considering the living and the non-living as resources for our use alone, while enslaving the species we find useful and eliminating the others.

It is urgent to implement the One Health concept for a unified approach to the challenges facing ecosystem health, veterinary health, and human health.

It is urgent to recreate local forms of solidarity, relocate production, and make farming that is respectful of nature a central activity in our local areas and communities.

It is urgent to listen to scientific experts and then use their advice as a basis for public policy.

It is urgent, finally, to consider nature not as an obstacle to human development, but as our most powerful ally for meeting the challenges facing our society in terms of health, the climate, food security and water supply. Ecosystems, and especially wetlands, provide very effective low-cost solutions with multiple side benefits.

Scientific expertise that supports decision making, health ecology, agroecology, and nature-based solutions are among the many approaches developed by the Tour du Valat and its wide range of partners.

It is up to us, together, to invent solutions for tomorrow!

André Hoffmann
PRESIDENT

Jean Jalbert
DIRECTOR GENERAL

[1] Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
[2] Intergovernmental Panel on Climate Change

Loïc Tendron ,
FARMER, IN CHARGE OF CROPS

“ I've dreamed of a natural farming environment in which nature and agriculture are reconciled. Thanks to the Tour du Valat, we're taking up this challenge at the Petit Saint-Jean Estate, in the Camargue, where water, sun, and wind will always be the masters of the game. ”

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1954
FOUNDED BY LUC HOFFMANN

84
EMPLOYEES

AROUND
1 500 scientific
PAPERS PUBLISHED

94
PhD

PROJECTS IN
+ THAN 20
MEDITERRANEAN
COUNTRIES
AND + THAN 300
PARTNERS

ORGANIC
AGRICULTURE
AND
AGROECOLOGY

CO2

LOW EMISSIONS
thanks to local waste recovery
such as rice husk
for inulation and heating

WETLANDS,
are very productive
yet highly threatened areas

-35%* Throughout the world

-48%* In the Mediterranean Region

*Between 1970 and 2015 according to the latest report of the MWO2 and the Ramsar Global Wetland Outlook.

THE TOUR DU VALAT

Created more than 65 years ago by Luc Hoffmann, visionary naturalist and patron, the Tour du Valat has since then developed its research activities for the conservation of Mediterranean wetlands with the constant desire to achieve: better understanding for better management. Convinced that it will only be possible to preserve wetlands if human activities and the protection of the natural heritage can be reconciled, Tour du Valat has for many years been developing programmes of research and integrated management that favour interchanges between wetland users and scientists, and promote wetlands benefit to decision makers.

Tour du Valat, located in the heart of the Camargue, is a private research organisation. It has the legal form of a public-benefit foundation since 1978. The estate, which includes all the natural habitats representative of the fluviolacustrine zone of the Camargue, extends over an area of 2,700 hectares, of which 1,845 are classified as a Regional Natural Reserve. Beyond its role of biodiversity conservation, it is a privileged site for conducting researches, test and develop agricultural and hunting activities compatible with the maintenance of this exceptional biodiversity.

The Tour du Valat is also a unique bibliographical resource centre in the Mediterranean, specialized in wetlands ecology. Each year, hundreds of researchers, teachers and students from the Mediterranean basin come and consult the library's reference material.

Tour du Valat employs around eighty employees who are involved throughout the Mediterranean.

The scientific team, comprising around fifty specialists, is working on programmes of research into the functioning of wetlands, and is testing out methods of management.

The results are communicated via training and the implementation of innovative projects being carried out in collaboration with a wide range of partners.


© P.Parrot

The Estate

The Tour du Valat Estate extends over almost 2,700 hectares and consists of a mosaic of natural habitats characteristic of the Camargue, notably some rare and threatened habitats such as temporary pools and fossil dunes, and also wide expanses of sansouires (saline scrub). The fauna and flora are adapted to these special habitats. In July 2008, 1 845 hectares of the estate received approval as a Regional Natural Reserve.

1 - THE CONSERVATION OF THE EXCEPTIONALLY RICH NATURAL HERITAGE

To this end, a wide range of natural heritage surveys and monitoring programmes are regularly carried out: vegetation mapping, botanical surveys, water bird censuses, mammal counts, etc. The estate team sees to it that the natural reserve regulations are adhered to and that the hydraulic infrastructure that enables 640 hectares of marsh to be kept in optimal condition for supporting biodiversity is well-maintained.

Bulls, storks and spoonbills on the Estate

2 - THE IMPLEMENTATION OF RESEARCH PROGRAMMES

Programmes are meant to better understand the functioning of habitats and species in relation with human activities. The aim is to learn the lessons needed to maintain biodiversity, optimise management practices, combat undesirable species, and restore degraded habitats. The results are put to use in assisting with the management of other sites, drawing up management plans, getting involved in technical networks, and signing up to economic mechanisms (Agri-Environmental Measures, Local Farming Contracts, Sustainable Farming Contracts, etc).

3 - MAINTAINING TRADITIONAL ACTIVITIES

Traditionally, the Tour du Valat's pastures have supported horses, sheep, and bulls. In 1994, the Tour du Valat set up its own extensive farm with 230 cattle and 20 horses of the Camargue breed, which graze 1200 hectares of natural habitats. This farm contributes to the research programmes that are carried out by the scientific teams. The estate's farm is self-financed and environmentally friendly, and conforms to the specifications for organic farming and for the "Camargue Bulls" Appellation d'Origine Protégée (AOP).

Four herdsmen (livestock farmers) turn their herds out to graze on a thousand hectares of the estate. In 2018, the livestock grazing on the site amounted to about 460 cattle and 40 horses. Other areas of land are also used for organic farming within a farming cycle that is traditional in the Camargue: rice, wheat, and hay.

HUNTING IS ALSO AN ACTIVITY THAT HAS BEEN CARRIED OUT TRADITIONALLY ON THE ESTATE.

It takes place subject to innovative regulations:

- To avoid lead poisoning among ducks, traditional lead shot has been banned since 1994 in favour of tungsten or steel alternatives; detailed shooting records are kept (number of shoots and number of kills) so as to provide reliable statistical data for scientific studies.
- The Tour du Valat hunting group comprises about fifteen current and retired employees of the organisation, who hunt over nearly 25% of the site.
- The Tour du Valat also takes an active part in local efforts to control the wild boar population, by organising drives (to which many local hunters are invited), arranging shoots to protect crops, and organising hunting by bow and arrow in the most sensitive areas of the nature reserve.

© H.Hôte / Agence Caméléon

The team

FROM LEFT TO RIGHT
AND FROM TOP TO BOTTOM:

Marion Lourenço, Ludovic Michel, Cédric Cairello, Olivier Pineau, Damien Cohez, Olivier Rey-Marbat, Roger Käslin, Julien Bourjaillat, Anthony Olivier, Yannick Michelier.

MISSING FROM THE PICTURE:

Frédéric Castellani, Dimitry Gleize.

Biodiversity on the Estate

© J.Jalbert

The Tour du Valat Estate features a wide variety of habitats and is home to many bird and plant species, as well as reptiles, butterflies, and crustaceans...

Réserve Naturelle Régionale
TOUR DU VALAT

IN THE SUMMER, WHEN THE MARSHES DRY UP, BIRDS HAVE AN ABUNDANCE OF FOOD!

White and Black Stork and Great White Egret
© D.Cohez

The large marshes on the Reserve dry up naturally during the summer, offering spectacular views of hundreds of waders including Black and White Storks, Eurasian Spoonbills, Great White Egrets, Grey Herons, Little Egrets, Black-winged Stilts, Common Greenshanks, and Eurasian Curlews. Lower water levels allow all of these birds to catch their prey more easily (fish, crayfish, and various invertebrates).

Some rarer species can also be sighted, such as the two Marsh Sandpipers spotted at the *Baisse du Rendez-vous,* and many ring readings can be conducted. Two Black Storks ringed in the nest in 2018 were thus controlled: F0U8 went to Haute-Marne, and TA73 was ringed in Bavaria (Germany). Many Eurasian Spoonbills and White Storks, most of which were ringed in the Camargue, were also controlled.

CENSUSES OF NESTING PASSERINES

Black Winged stilt
© J.Jalbert

Since 1995, the Tour du Valat has been conducting five-year monitoring (triennial since 2010) of nesting bird populations on its estate (2600 ha), by means of 20 min. sessions at 115 listening points. These censuses have enabled us to show that there is a diverse bird population that corresponds to the different habitats on the estate: sansouïres, marshes, Mediterranean thickets, dry grasslands, riverine forests, and cultivated areas. The three most abundant species on the Estate in 2019 were the Common Nightingale, the Melodious Warbler, and the Eurasian Skylark.

While the number of species present has changed relatively little over the past 25 years of monitoring, fluctuating between 56 and 71, which is also true of the total number of pairs (a minimum of 1,648 in 2000, and a maximum of 2,310 in 2016), a more detailed analysis of these results shows significant changes in populations.

For example, four species have experienced very marked declines in their numbers since 2000: the Magpie (-86%), the Carrion Crow (-76%), the Eurasian Tree Sparrow (-97%), and the Western Jackdaw (-100%). Today, these species have almost completely disappeared from the Tour du Valat Estate, whereas in 1995, several dozen individuals of each were sighted.

There has also been a long-term decline in the numbers of European Turtle-dove, Common Hoopoe, and European Green Woodpecker.

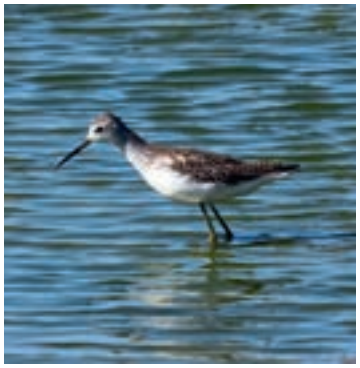
On the contrary, two species have seen their numbers increase significantly: the Melodious Warbler (+180%) and the Sardinian Warbler (+242 %). The Corn Bunting and the White Stork have become solidly established on the Estate, whereas two decades ago they were nearly absent.

Overall, these results seem to show that the Tour du Valat Estate corresponds well to what the fluviolacustrine Camargue was prior to the major agricultural and hydrological projects that marked the delta in the 20th century. Proof of this can be seen in the large number of birds that are dependent on sansouïres and grazed grasslands, as well as in the fluctuation of wetlands species in dry and rainy years.

Greylag Goose
© M.Thibault

HIGHLY PRODUCTIVE MARSHES

The Tour du Valat temporary marshes are known to be very productive environments, particularly for invertebrates. Every spring, swarms of dragonflies, beetles, and other insects emerge from these marshes. Some predators take advantage of this manna: groups of 25 to 30 Eurasian Hobbies have been observed above the Salin de Giraud marsh during the month of May. Even more surprising, Scirpus maritimus stems in these marshes have been seen covered with tens of thousands of marsh leafhopper (*Aglena ornata*) larvae metamorphosing.



Marsh Sandpiper
© D.Cohez

Marshland Hoppers during metamorphosis © D.Cohez

Natterjack Toads
© Tour du Valat

Patrick Grillas,
PROGRAMME DIRECTOR

© H.Hôte / Agence Caméléon

THE PROGRAMME

Our programme has the following four objectives: (1) improve our understanding of the functions, values, and services provided by Mediterranean wetlands, (2) assess management practices that aim to better conserve, restore, and use them sustainably, (3) develop synergies between stakeholders, particularly through capacity building, to ensure there is a real evolution toward the sustainable management of wetlands, and (4) unite stakeholders to advocate the importance of Mediterranean wetlands vis-à-vis decision-makers.

2019 was marked by many new projects and achievements.

In terms of research, two H2020 projects from the European Union (ECOPOTENTIAL and SWOS) were completed with the publication of articles related to the use of remote sensing, modelling, and ecosystem services. Such projects provide significant support to our scientific activities. One of the main causes of the decline in biodiversity is the intensification of agricultural activities, and the Camargue, like the entire Mediterranean Basin, is exposed to it. The Tour du Valat is concerned by the agricultural exploitation of the Tour du Valat Estate, and, for a few years now, of the Petit Saint-Jean Estate, but with relatively little investment in research. The situation is now changing with an increased demand from the industrial world for agricultural products with a minimal negative impact on the environment and biodiversity. These requests, in conjunction with Pierre Mallet's thesis, have led to the launch of a new project focusing on the interactions between agricultural practices in large-scale grain crops (wheat, rice) in the Camargue, and biodiversity. We are also participating in a Mediterranean project supported by the MAVA Foundation that aims to sustain traditional agricultural practices on the Greek island of Lemnos. Invasive exotic species (IES) are also one of the main causes of the decline of biodiversity. Likewise, within the scope of Manon Hess' thesis, field tests on post-disturbance management strategies for plant communities (including the destruction of IES populations) have been carried out that seek to limit the risk of invasion.

Antoine Gazaix defended his Ph.D. dissertation on the ecology of annual plants like *Lythrum* (loosestrife) that are found abundantly in temporarily flooded wetlands, and more particularly *Lythrum thesioides* a very rare plant discovered near Nîmes.

In terms of management, the year was marked by an intense drought and high temperatures in the summer that increased salinity in some areas of the estate, as well as elsewhere in the Camargue, generating tensions with hunters, fishermen, and farmers. Efforts to explain climate changes and our management rationale have been undertaken and must be continued. Restoration work and monitoring of the lagoons and marshes of the former Camargue saltworks site have been carried out for the 10th consecutive year. At the interface between science and management, and in partnership with Conservation Evidence, a synthesis of current knowledge has been published on the effects of management methods for the conservation of vegetation in peaty environments.

Nature-based solutions are ideal for raising awareness among wetland management stakeholders and decision-makers. The Tour du Valat and its Mediterranean partners organised an international workshop in Marseille on how to implement these solutions to meet the challenges of climate change. This theme was a main concern in 2019, and will remain so in 2020, particularly at the World Conservation Congress organised in Marseille by the IUCN. The 2018-2021 project to strengthen the capacity of civil society in seven Mediterranean countries (financed by AFD-FFEM / Agence Française de Développement - French Global Environment Facility) reached its full scale in 2019 with numerous training courses. The project's overall goal is to take better account of wetlands in territorial planning and development decisions in the southern and eastern parts of the Mediterranean Basin.

Prior to the preparation of the next programme in 2020, an in-depth study was made in 2019, both internally and externally. This included (1) an overview of the situation of Mediterranean wetlands (2) the identification by stakeholders in the Mediterranean Basin of the main research questions the answers to which would enable better wetland conservation, and (3) an analysis of the strengths and weaknesses of the Tour du Valat.

What about... 2020?

Our current programme will be finished at the end of 2020, and a major activity throughout the year will be the preparation of our next programme. This preparation will be based on the work carried out in 2019 on our conservation priorities and improving our internal organisation. A revision of the Tour du Valat Estate management plan will also be carried out in 2020. Several important international meetings are scheduled in 2020, but the current Covid-19 crisis has caused the World Conservation Congress in Marseille to be postponed to 2021, and other meetings will probably be postponed as well. This crisis is forcing us to adopt new ways of organising our work and should make us reconsider our way of working in the longer term. Fieldwork at the beginning of this year has been strictly limited to what is essential, and there is little visibility for the upcoming months. Convincing political decision-makers of the importance of biodiversity conservation will be a major challenge in the post-corona virus crisis period.

Patrick Grillas
PROGRAMME DIRECTOR

Juliette Biquet
CIVIC SERVICE VOLUNTEER

Eleonora Saccon
EUROPEAN VOLUNTEER

“Our mercenaries are setting off on a myriad of quests to describe the Mediterranean diversity. Joined by knights from all around the world, they will explore the infinite territories to discover their mysterious creatures, while fighting against the horned dragons and mosquitoes.”

SPECIES
DEPARTMENT

Species conservation

Departure for
Spoonbill ringing
© G.Wasse/TDV

The Department's overall objective is to contribute to the conservation of animal species found in Mediterranean wetlands and assist in the management of conflicts that may occur between these species and human activities.

We aim to contribute to:

- the conservation of endangered species;
- the management of species in conflict with human activities (pests, health...);
- the management of key species for human activities such as fishing, hunting, and tourism.

Our conservation objectives are based above all on scientific knowledge, either by directly conducting research projects, or by transferring and applying the knowledge produced by the scientific community at large. Research in our Department is focused on four main areas, which are considered to be major issues in Mediterranean wetlands today and correspond to our current capacities:

- the population dynamics of Mediterranean wetland species in response to the pressures of human activities;
- the interactions between species conservation and issues linked to public and veterinarian health;
- the interactions between Mediterranean wetland species with an unfavourable conservation status and introduced non-indigenous species;
- 5-, 10-, and 25-year estimates of species distribution and populations, in function of changes to landscapes, climate, and their exploitation.

We continued our long-term study of vertebrate population dynamics while diversifying our marking methods (RFID for eel, and GPS tags for spoonbills–see Focus pages 24-25). These studies enable us to better understand how vertebrates respond to global changes, particularly when it comes to their migration routes.

The species monitored in our programme are also a valuable model for the toxicological monitoring of Camargue wetlands. For example, we are studying heavy metal and pesticide contamination in the European Pond Turtle, a freshwater turtle that is found in marshes and 'roubines' (canals connecting saline lagoons with the sea) in the Camargue. We are also studying the effects of macro-plastics on the Yellow-legged Gull.

We have also continued the counting of wintering and breeding birds, as well as the counting of fish communities. These censuses are key tools for monitoring species trends and providing decision support for administrators and public conservation policies.

We now have a drone, which allows us to count bird colonies without using an airplane, which means that the bird communities are no longer disturbed.

The mid-January international waterbird counts have been carried out and are now accompanied by a capacity building programme in North Africa, supported by the Agence Française de Développement (AFD) and the French Global Environment Facility (FFEM).

Arnaud Béchet,
DEPARTMENT
COORDINATOR

© H.Hôte / Agence Caméléon

The Species team

FROM LEFT TO RIGHT
AND FROM TOP TO BOTTOM:

Yves Kayser, Colin Bouchard, David Vallecillo, Louisiane Burkart, Patrice Boulongne, Jocelyn Champagnon, Florian Ferchiche, Marion Vittecoq, Oscar Sanchez Macouzet, Clémence Deschamps, Delphine Nicolas, Laura Dami, Marie Suet, Ana Jara, Pascal Contournet, Arnaud Béchet, Christophe Germain, Thomas Blanchon, Anthony Olivier, Antoine Arnaud.

MISSING FROM THE PICTURE:

Inès Le Fur, Timothée Schwartz.

Bird watching from the South of the Réserve Nationale de Camargue
© G.Wasse

SPECIES PROJECTS

1 - Population dynamics in response to human activities

Arnaud Béchet / bechet@tourduvalat.org

Three main activities are being developed:

- Demographic analysis of populations and metapopulations by means of Capture-Mark-Recapture (CMR) and genetic studies (birds, fish, and reptiles);
- Long-term monitoring of biodiversity in the Camargue (in particular communities of birds, fish, amphibians, and reptiles);
- Development of tools for gathering, managing, analysing, networking, and presenting data.

After abandoning the Fangassier Lagoon because of an aerial disturbance, **the Greater Flamingos** were nevertheless able to reproduce at the Aigues-Mortes saltworks. Efforts to survey the Eurasian Eagle Owl population were continued in order to better understand the interaction of this predator with colonies of Flamingos and Colonial Charadriiformes.

Ten young **Eurasian Spoonbill** were equipped with GPS tags as part of a project conducted with Dutch colleagues to better understand the environmental and genetic factors that determine the migratory routes used by this species (see Focus p. 24).

A study of the expansion of the **Slender-billed Gull** population on the French Mediterranean coast between 1998 and 2013 showed a shift in diet toward higher level prey corresponding to the use of less saline habitats. This change occurred without any significant variation in reproductive success, suggesting the good capacity of this species to adapt to environmental variations.

Over 200 **European Eel** have been equipped with RFID chips. The longitudinal movement of these eel is now being monitored in the Fumemorte Canal at two crossing points in order to better understand the movement and maturation strategies of this species.

2 - Health ecology

Scientific monitoring of Pond Turtles
© Jean.E Roché

Marion Vittecoq / vittecoq@tourduvalat.org

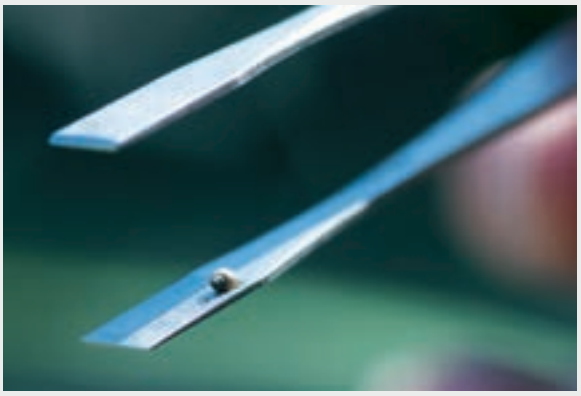
The aim of this project is to understand the interactions between biodiversity and the dynamics of the pathogenic agents linked to public health and veterinarian problems. Our understanding of these issues will help us reconcile the conservation of Mediterranean wetlands with the presence and well-being of human populations, and also contribute to the protection of species with an unfavourable status during epizootic periods or pollution events.

In collaboration with Kristianstad University (Sweden), we conducted a second field study to compare strains of **antibiotic-resistant bacteria** present in wildlife and water, the latter being considered a major factor of transfer between biotic compartments.

A new phase in our study on the Common Liver Fluke has been launched by Antonio Vazquez (post-doctoral student) at eight sites on the Tour du Valat estate that are potentially favourable to the transmission of Fasciolosis. We started an inventory of freshwater molluscs potentially carrying Trematodes. Only three species of molluscs were found on the 31 sites listed, showing very low diversity. Furthermore, out of the 689 individuals sampled, none were carriers of **trematode** larvae.

In addition to monitoring **ticks** in the Yellow-legged Gull colony that we are studying with the MIVEGEC (Infectious Diseases and Vectors: Ecology, Genetics, Evolution and Control) unit (CNRS/IRD/UM – French National Center for Scientific Research / French National Research Institute for Sustainable Development / University of Montpellier), we started a study on **macro-plastics** in the colony and in the gulls themselves, following a standard protocol developed by Jennifer Provencher's team (Canadian Wildlife Service). We will try to understand connections between exposure to these contaminants, life history traits (survival, reproduction, and migratory capacities), the impact of ticks on individuals, and the carrying of pathogens.

In 2018, we started a study of the impact of contaminants on the **European Pond Turtle** found in the Camargue (financed by the Rhone-Mediterranean and Corsican Water Agency). Initial analyses have revealed very low levels of Persistent Organic Pollutant Contamination. Nevertheless, and against all expectations, high occurrences and concentrations of DEET (a molecule used in mosquito repellent sprays) have been found. The source of this contamination has not yet been determined.



Study of Freshwater Molluscs
© Jean.E Roché

3 - Modelling and monitoring wetland biodiversity

Collared Pratincole
© J.Jalbert

Jocelyn Champagnon / champagnon@tourduvalat.org

The main goal of our research is to understand species trends at spatial and temporal levels. Vertebrate populations have thus been monitored for many years, some for several decades.

In the Camargue, David Vallecillo's PhD (financed by the François Sommer Foundation) focuses on the influence of the bird counter, methodology, and habitat on duck censuses, in the aim of understanding the population trends observed over the last half-century. He ran a simulation in 2019 to demonstrate the value of using the same bird counter to quickly detect a decline in population. At the same time, there has been a concerted effort with local managers to promote more sustainable hunting.

We also analysed the population trend of the Collared Pratincole in France. After a strong decrease between 1970 and 2000, the **Collared Pratincole** population seems to be stable today, with an average of 70 pairs, but varying annually between 37 and 127 pairs. We observed an increasing likelihood of Collared Pratincole nesting in ploughed fields over the last 20 years.

Around the Mediterranean, the Mediterranean Waterbird Network (MWN) continued providing support for the monitoring of wintering birds in the form of training for waterbird censuses and population trend analyses. The results of 30 years of monitoring in North Africa were presented at the International Conference of the European Bird Census Council–EBCC–in April 2019.

This year, we also launched a project for the revaluation of wetlands in the Mediterranean and to strengthen the capacity of NGOs (financed by Agence Française de Développement and the French Global Environment Facility).

The AEWA Technical Support Unit (TSU) continued its work aiming to improve the quality and quantity of waterbird census data in Africa. As part of the RESSOURCE project, the French Biodiversity Office (OFB) has conducted surveys in Sudan and Chad that have identified over 15% of the Black Crowned Crane population. This species is listed as Vulnerable by the International Union for Conservation of Nature (IUCN). The TSU also organised and conducted a training course on data management and analysis for agents in charge of the conservation of wildlife and protected areas in Chad (DCFAP). An educational film on the methods of waterbird counting was made for this purpose.

Black-headed gulls
© J.Jalbert

Pathogen dynamics modelling

Since 2017, we have mapped the risk of **avian influenza viruses** in the Vaccarès Lagoon. Our innovative approach was further developed by taking into account the impact of water temperature and salinity on the persistency of viruses, as well as by adding an epidemiological component. Our goal is to keep complexifying the Camargue model and to develop similar models for the Grand-Lieu site.

4 - Database

Christophe Germain / germain@tourduvalat.org

The aim in this area of research is to develop efficient infrastructure for gathering, managing, and consulting naturalistic data. Several tools are being developed within this framework. All the data related to breeding and wintering birds acquired by the Tour du Valat and its partners are gradually being integrated into the online platform **medwaterbird.net**, which improves the quality of the data and makes it more readily exploitable for analyses. This is already the case for almost 30,000 data points related to wintering duck counting (2004 to 2013). New protocols for field data collection have been developed with Cybertracker and with modules that can automate data integration into the **medwaterbirds** and **obsnature-camargue.net** portals.

Khor Abu Abl, Sudan
© P.Defos du Rau

FOCUS

Eurasian Spoonbill migration

Migratory birds

Migratory birds undertake long journeys throughout the world in different seasons, and people have always been fascinated by their migration. Millions of bird fly south every autumn, and after being away for months, fly back in the following spring to breed and raise their young. How do the young inexperienced birds undertake their first migratory flight and know where to go? Is this route coded in their genes, or do they learn it by following experienced adults? In an environment that is rapidly changing because of human activities, it is vital to understand how fast migratory birds can adapt their routes.

The degree to which environmental and genetic factors influence the migratory routes of birds enables us to determine how quickly migratory species can adapt their migration to global changes. While migration is mainly influenced by the genes, birds' capacity to adapt depends on their genetic variability and generation time. For long-lived species with long generation times, such as the Eurasian Spoonbill, the natural selection of "migratory genes" is a rather slow process. On the other hand, if juvenile birds learn the route from adults, the adaptation speed should be relatively rapid, because the young birds will not follow unsuitable migratory routes. In addition to social information, the young birds gain experience about the availability of food and the climatic conditions. Both can influence their decisions to continue their migration or to remain at a resting place, or even to change the direction of their migration, which leads to a more rapid adaptation of the migratory routes.

Eurasian Spoonbill

This project aims to understand the role played by environmental and genetic factors that influence the migratory routes of individual Eurasian Spoonbill *(Platalea leucorodia)*. This species has several migration strategies. The Camargue population takes two migratory routes: an Atlantic route, with a wintering site in Spain, Mauritania or Senegal, and a central European route with a wintering site mainly in Italy or Tunisia. On the other hand, approximately 200 of these spoonbill winter in the Camargue.

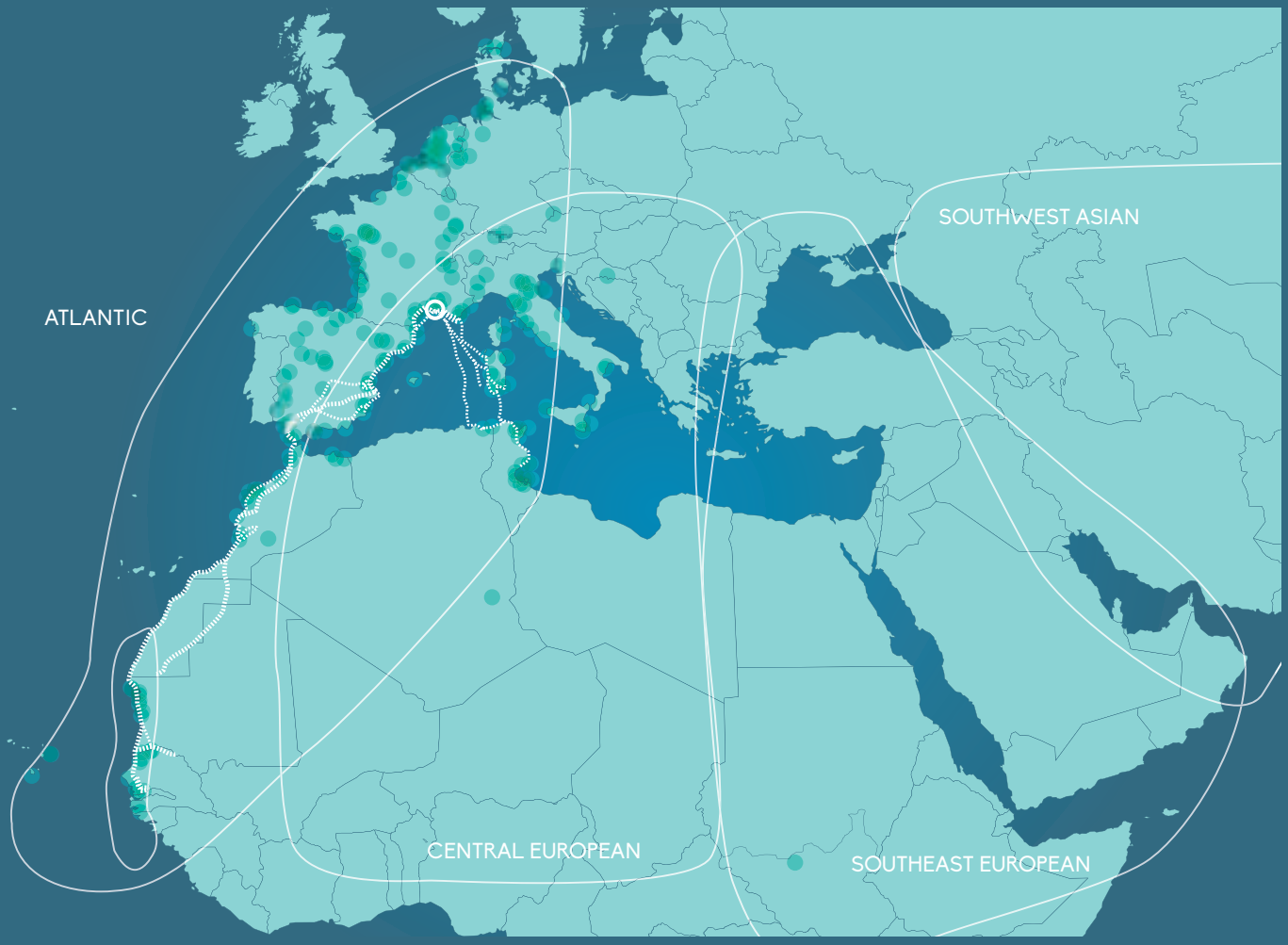
Meanwhile, the Dutch population only uses the Atlantic migratory route. However, while some individual birds make short migrations to France, others winter in the Iberian Peninsula, and a large group winters in Mauritania or Senegal.

Long-term monitoring and censuses of these two populations (Dutch and Camargue) have been carried out for many years.

The information gathered when these rings are read has enabled us to show that there is a high mortality rate during their first year of life (about 70%) and wide dispersal, with spoonbills sometimes sighted as far away as southern Sudan. Spoonbill face many dangers during their first migration: they must fly over wide expanses of water and land such as the Mediterranean Sea and the Sahara Desert, where there are no places to stop. It is also difficult to find resting places where food is abundant, wind conditions can be adverse, and energy infrastructure (wind turbines and high-voltage power lines), predators, and poaching are all obstacles.

A young spoonbill in the Camargue fitted with a PVC ring bearing the code 'AXAB.'

To better understand what determines the choices made by the young spoonbills during their migration, we placed innovative GPS-GSM devices on them. These tags record a GPS position every ten minutes, as well as the behaviour of each bird with an accelerometer. We can thus link the behaviour of individual spoonbills to their environmental conditions and understand what habitat they use and how much energy the young spoonbills store before and during their first migration.



DISTRIBUTION OF THE RE-SIGHTINGS OF EURASIAN SPOONBILL THAT ARE RINGED EVERY SPRING IN THE CAMARGUE, AND SOME MIGRATORY ROUTES OF INDIVIDUALS FITTED WITH GPS TAGS.

Importance for conservation

This study will enable us to better understand the constraints facing these spoonbills and migratory birds in general, and their capacity to adjust their migration to current changes in their environment. In addition, monitoring with PVC rings or GPS tags enables us to identify the significant sites for the species, and for other waterbirds, during their entire yearly cycle.

The Eurasian Spoonbill is protected by an international action plan coordinated by the Eurasian Spoonbill International Expert Group (ESIEG). This group was established in 1991, and is today under the auspices of the AEWA (African-Eurasian Waterbird Agreement), an intergovernmental treaty for the conservation and coordinated management of migratory waterbirds throughout their migration area. The Tour du Valat coordinates this group of experts.

Placing a GPS tag on a spoonbill chick in the Camargue, June 2019. The tag weighs 25g and does not change the bird's natural behaviour.
© G. Wasse / Tour du Valat

TEAM: Jocelyn Champagnon, research scientist, chair of the AEWA's Eurasian Spoonbill International Expert Group; Thomas Blanchon, research technician.

PARTNERS: INIOZ (Royal Netherlands Institute for Sea Research), Tunisian Association "Les Amis des Oiseaux/Birdlife (AAO), AEWA, IUCN Stork, Ibis and Spoonbill Specialist Group, National Nature Protection Society (SNPN)-Camargue National Nature Reserve, Conseil Départemental 13, Vigueirat Marshes National Nature Reserve, SMCG (Federation for the protection and management of the Gard Camargue), Aude-Nature.

ECOSYSTEMS
DEPARTMENT

Ecosystems conservation

Leaving for a botanical survey
© Tour du Valat

The Department's general objective is to conserve biodiversity and ecosystem functions and services, in a context of global changes, by means of multidisciplinary research in four complementary areas of research:

- modelling to assist management and restoration actions based on a better understanding of the functioning of ecosystems and their probable evolution;
- restoring the biodiversity and functionality of degraded ecosystems by using scientific expertise to pilot restoration actions and management decisions;
- implementing and promoting adaptive, intersectoral, and sustainable management systems integrated into the dynamics of local areas through a site-based approach;
- transferring the knowledge acquired to target stakeholders (managers, decision-makers, scientists, and the general public) by designing appropriate communication tools, in particular through the Mediterranean Lagoons Transfer Unit's actions.

In 2019, the Department's activities were mainly implemented on two levels:

1. locally, through concrete management and restoration actions on specific sites–particularly in the Camargue, in order to promote best practices, including those inspired by nature-based solutions;
2. extending our research to the entire Mediterranean basin through experiments and simulations, targeting in particular an assessment of climate change impacts and the mitigation of its effects.

We thus continued our work on the various properties of the Tour du Valat, which are used as open-air laboratories. New approaches and models ranging from governance tools to invasive species control were tested. Research and transfer actions within the department focus increasingly on climate change and on the Mediterranean region. Several joint projects with research institutes in France and abroad have been undertaken for that purpose. The Mar-o-Sel interface developed in 2015 for the Camargue now includes climate projections for 2050 and 2100, for 229 localities around the Mediterranean Basin. The Camargue has also become a case study for simulating the impacts of sea-level rise and coastal erosion thanks to the long-term data we have on its coastline dynamics and the hydrological functioning of the delta.

Our work on the impact of mosquito control using Bti in the Camargue has had an impact in various circles, including scientific groups, collectives and foundations aiming to inform legislators in various parts of the world. As a result, this research initiated by the Tour du Valat in the Camargue in 2006 is at the origin of a global movement questioning the environmental safety of Bti. We have responded positively to all requests to present lectures to the general public, contribute to literature reviews and appear in television reports. Many of our transfer activities also concerned the *Étangs et marais des salins de Camargue* (former Camargue Saltworks site), for which we are celebrating ten years (already!) of adaptive management. There were many opportunities to showcase this site, including a Thalassa television report, an international conference on nature based solutions for adapting to climate change—with an accompanying booklet of feedback, as well as a parliamentary mission that visited this site, resulting in the report Wetlands, Lands of the Future, published earlier this year and which will be used to shape the future national wetlands strategy.

Coastal wetlands are currently facing unprecedented environmental and societal challenges due to climate change and sea-level rise. The consequences of these transformations are becoming visible, affecting the functioning of ecosystems and human activities. This is the theme we will address in the Focus section, in which we present the observations and simulations that allow us to better apprehend the dynamics underway in the very special territory known as the Camargue.

Brigitte Poulin
DEPARTMENT
COORDINATOR

© H.Hôte / Agence Caméléon

The Ecosystems team

FROM LEFT TO RIGHT AND FROM TOP TO BOTTOM:

Damien Cohez, Loïc Willm, Gaëtan Lefebvre, Anthony Olivier, François Mesléard, Philippe Lambret, Lucie Pichot, Pelayo Menendez, Emilie Luna-Laurent, Hugo Fontes, Samuel Hilaire, Nathalie Chokier, Loïc Tendron, Maxime Modjeska, Nicolas Beck, Brigitte Poulin, Katia Lombardini, Lisa Ernoul, Olivier Boutron, Marc Thibault.

MISSING FROM THE PICTURE:

Dilara Aslan, Antoine Gazaix, Jawad Grii, Manon Hess, Virginie Mauclert.

ECOSYSTEMS PROJECTS

Camargue, retrieving hydrological data from a probe (in the Vaccarès Lagoon)
© S.Lopes

1 - Ecosystem dynamics modelling

Olivier Boutron / boutron@tourduvalat.org

Our activities in 2019 focused especially on projects completed within the scope of the Delta Contract, in particular the development of a hydrothermal salinity dynamics model for the entire Vaccarès lagoon and the EMSC site (former Camargue saltworks). This tool will enable us to understand this system's dynamics in response to global changes, so that we can then provide input for water-management decisions. Meanwhile, during the final year of the Ecopotential H2020 project (2015-2019) we finalised and published several research articles in which modelling plays a crucial role enabling us to better understand the functioning of Mediterranean wetlands and how they are responding to global changes. Our work has provided the tools needed to help local stakeholders better manage these areas. They assist them in estimating the vulnerability of Mediterranean wetlands to climate change in 2050 and 2100, improve hydrological monitoring methods using satellite imagery, and conduct spatio-temporal mapping of recreational services in the Camargue through the analysis of data collected on social networks via automated learning and natural language processing.

Production of a sediment core to study the marsh seed bank
© Tour du Valat

We also continued our collaborative projects with other research teams and developed new partnerships, both within the Tour du Valat and with outside organisations. Our joint projects at the Tour du Valat focus on hydrology in relation to influenza A virus dynamics, the transfer of antibiotic-resistant bacteria, and ecosystem services. Our projects with outside partners continued with the Inria - French National Digital Sciences Research Institute, (a porosity modelling project focusing on hydrology), as well as IRSTEA Montpellier - National Research Institute of Science and Technology for the Environment and Agriculture (now INREA), and Artelia, a private engineering company (fine modelling of hydraulic infrastructure), while a study was started with the University of Toulon to measure and model the storm surges generated by the wind in lagoons and the resulting surface water runoff. Finally, a joint project that models the vulnerability of coastal Mediterranean wetlands to sea-level rise was started with the MWO. It is being conducted with the University of Kiel, in Germany, the University of Lincoln, in the UK, and Aix-Marseille University (IMBE—Mediterranean Institute of Marine and Terrestrial Biodiversity and Ecology).

2 - Ecosystem restoration

François Mesléard / mesleard@tourduvalat.org

In 2019 our team obtained results that improve our understanding of the systems we study, and have already enabled us to make concrete proposals for managing them.

Antoine Gazaix's Ph.D. thesis helped us to formulate recommendations for managing and restoring the only French population of *Lythrum thesioides*, on the basis of the particular germination ecology of this species, which is dependent on the temporary ponds close to the new Avignon – Montpellier TGV high-speed train line. His doctoral dissertation, defended at the end of the year, was co-supervised by the University of Montpellier and the CEFE-CNRS - Centre of Functional Ecology and Evolution – French National Center for Scientific Research.

As part of an experiment to create communities impervious to invasive species by seeding indigenous species, we demonstrated that the interest of including seeds that are phylogenetically close to those of the potentially invasive species is not based on any convincing scientific evidence, and, in addition, can rarely be applied in the field (Manon Hess's doctoral thesis conducted in collaboration with the University of Avignon / IMBE).

The research conducted on the impact of ants on grasslands highlights, as expected, the effects on the vegetation, but also on the nitrogen content of the soil, its granulometry, and the invertebrate communities dependent on it. These results confirm the value of using ants as ecosystem engineers to restore herbaceous environments (Tania de Almeida's doctoral thesis conducted in collaboration with the IMBE at the University of Avignon).

Ants, formidable allies for ecological restoration
© A.Granger

The numerous ponds sampled in order to define a reference ecosystem highlight the high degree of variability between different ponds. This variability confirms the hypothesis that the reference in Mediterranean wetlands should be a panel of ponds considered to be in good condition, making it possible to characterise inter-site variability in space and intra-site variability over time (Hugo Fontes' doctoral thesis conducted in collaboration with the IMBE at the University of Avignon).

3 - Adaptive and integrated management

Lisa Ernoul / ernoul@tourduvalat.org

To preserve landscape diversity and improve wetland management, we tested management methods and approaches at various sites in the Camargue and around the Mediterranean Basin.

A new auditing tool for identifying the strengths and weaknesses of the Tour du Valat management plan was tested, before its full assessment scheduled for 2020. Infrastructure work was carried out to improve hydraulic control of the Bomborinette marsh. We hope this work will increase the site's potential for the successful reproduction of the Western Spadefoot Toad, whose population numbers are showing a dramatic decline on the Estate. Another project following up on the post-dismantling operations of the high voltage electrical line by RTE— the French electric power transmission network— shows that the soil was only decompacted to a depth of 40 cm by the excavator.

Our agroecology project on the **Petit Saint-Jean Estate** continued developing with the planting of two new vineyard plots in 2019. In order to become autonomous in organic fertilizer, we developed a composting station that processes shredded local plant waste. Renovation work on the buildings included the insulation of the roof of the old farmhouse, and the installation of an apartment on the first level and a cellar on the ground floor. A new reed bed water treatment system now treats all of the contaminated water. A feasibility study on the possibility of raising a flock of sheep on the Estate is being conducted by students from Supagro Montpellier (agricultural school).

Visit of Interreg Med WetNet project partners in the Verdier marshes
© Tour du Valat

The WetNet project was finalised with a new participatory action plan for the **Verdier Marshes** accompanied by an experience-sharing study visit by the project partners. All of the participatory activities already in place were maintained with some time devoted to mobilising volunteers for site and equipment maintenance (premises, pump, pedestrian gates) and the development of new communication tools such as educational panels, a site information booklet, and a website). A 'summer school' session was organised in Venice to exchange information and transfer knowledge on wetland contracts with other stakeholders from the Mediterranean Basin.

View of the Petit Saint-Jean Estate vineyard
© N.Beck

On the **former Camargue saltworks site** (EMSC), the second phase of work to improve hydro-biological connections was completed. We also continued the feasibility study for the ecological restoration of the wetlands located along the Old Rhone as well as our ichthyological monitoring.

Development and management solutions for the Japon sub-catchment basin are also under study, in order to better take account of the hydro-environmental objectives defined for the downstream protected areas (the EMSC and Camargue National Nature Reserve).

We provided expertise concerning the new acquisitions made by the Conservatoire du Littoral in the Camargue and continued the surveillance and ecological monitoring of the **Tourtoulen** site. The RipiMed study conducted by the Groupe Chiroptère de Provence confirmed the key role played by riverine forests, particularly senescent ones, for Chiroptera. A new species of Chiroptera in the Camargue was discovered within this study, *Myotis crypticus*. A training course was organised in Croatia on the role played by the social sciences within the field of conservation, and a biodiversity survey and assessment was conducted for the Aoös/Vjosa River in Albania.

4 - Mediterranean Lagoons Transfer Unit

Virginie Mauclert / mauclert@tourduvalat.org

The Tour du Valat has managed one of the five lagoons transfer units since 2001, in partnership with the Occitanie Nature Area Conservancy and the Corsican Environmental Office (OEC). Its activities encompass 130,000 hectares of French Mediterranean coastal lagoons and peripheral wetlands. Its goal is to help all of the stakeholders involved promote the sustainable management of these ecosystems.

The Life Marha project was continued in 2019 with the publication on the National Inventory of Natural Heritage website (www.mnhn.fr/en/research-expertise/expertise/natural-heritage-department/national-inventory-natural-heritage) of an updated version of the 'Methodology for assessing the conservation status of "coastal Mediterranean lagoon" habitat, completed in collaboration with UMS PatriNat – a multidisciplinary research team in the Natural Heritage Department at the French National Museum of Natural History. This version was presented at a meeting at the Tour du Valat for the N2000 site managers and activity organisers concerned by this habitat. Four training courses were held to provide them assistance on the topics of 'Assisted mapping with QGIS' and 'Invasive alien species and alert networks'.

In addition, those who monitor lagoon habitats convened twice in large numbers, first at an interregional FIL-MED meeting, and then at a workshop on colonial Charadriiformes monitoring linked to the Life ENVOLL project completed in 2018. We also managed a Facebook page 'La Météo des oiseaux' (Bird forecast) targeting surfers and kite surfers throughout the summer to inform them about changes in the colonies installed on the coastal sites and to strengthen our vigilance in these sectors.

This year 20,000 people were contacted through our awareness-raising activities via communication operations on World Wetlands Day and European Heritage Days.

QGIS training, Life Marha, october 2019

FOCUS

Focus on climate changes in the Camargue

Until recently, our research on ecosystem conservation as a response to global changes focused primarily on the anthropogenic actions that directly affect the functioning of wetlands. Although they were integrated into global changes, climate changes were previously considered to have impacts difficult to clearly identify, given the highly artificial nature of Camargue ecosystems. What about today, and what will the situation be like tomorrow?

What will the climate of the Camargue be like in 2050 and 2100?

The Mediterranean climate is characterized by mild, rainy winters and hot, dry summers with a significant annual water deficit. Indeed, the 666 mm of rainfall that it receives every year on average is not enough to compensate for the 1815 mm lost through evapotranspiration (evaporation + plant transpiration). If greenhouse gas emissions continue to rise at the same rate as today[1], this deficit could increase by 23% by 2100 (from -1149 to -1427 mm). According to the best climate model available today[2], we should expect even hotter and drier summers with rarer but even more intense rainfall episodes outside of the summer season.

What will the consequences be for wetlands?

Seasonally flooded marshes typical of the Mediterranean climate will not be too adversely affected initially thanks to their capacity to store winter rainfall and the decrease amount of water lost through evapotranspiration, which occurs to a large extent when the marshes are dry (Lefebvre et al. 2019). However, they will be naturally flooded later and later in the autumn because the soil will dry to a deeper depth and rainfall will come later (Fig. 1).

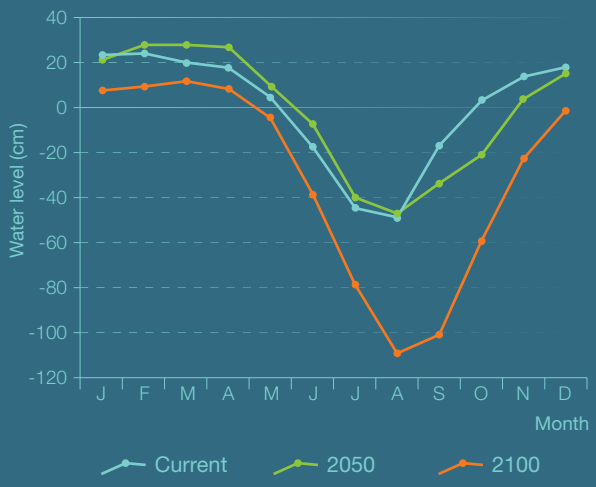


Fig. 1. Change in the hydrology of a Camargue marsh according to current and future precipitation (mar-o-sel software simulation)

For example, a marsh that is now naturally dry from June to September could dry out from June to October in 2050, and from May to December in 2100[3]. To maintain the current length of flooding, about 800 cubic meters of additional water per hectare would be needed in 2100. Meanwhile, the permanent marshes would require 15,000 cubic meters per hectare to remain flooded throughout the year. The Rhone provides an endless supply of water; however, its salinity is likely to increase due to lower flow rates that will result in an advancing saltwater wedge driven by sea-level rise.

Breach in the Veran dyke (former Camargue saltworks site)
© M.Thibault

Get ready for the rising sea level

Global warming means the thermal expansion of the oceans, as well as melting polar ice caps and mountain glaciers. As a result, the Mediterranean Sea has risen on average by 3 mm per year for two decades (Cramer et al. 2018). Deltas like the Camargue, with 70% of their area at less than one meter in altitude, are in danger of being partially covered by water in a few decades all the more since the Rhone can no longer deposit coarse sediments there. The recent storm Gloria has once again showed us the importance of maintaining these buffer zones to absorb the impact of storms. For while the sea continues to rise gradually, it is the stormy events that cause damage and are reshaping the coastline. And while we can protect ourselves reasonably well from a cresting river, it is much more difficult to shelter our communities from the devastating effects of a raging sea.

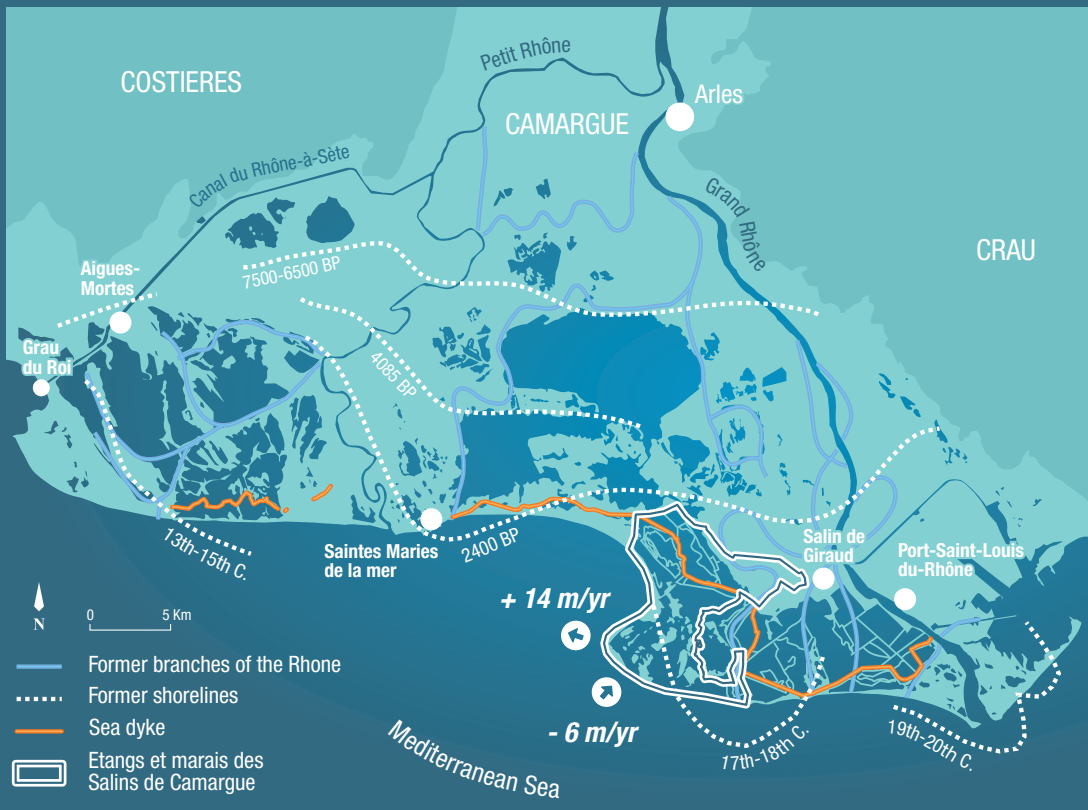


Fig. 2. Dynamics of the fluvial geomorphology of the Camargue Delta (Arnaud-Fasseta 2005). © L.Willm.

Allow the coastline to change wherever property and people are not threatened

The Camargue is a recently formed delta. Whereas the current branches of the Rhone were embanked by the dykes built in 1869, some sectors along the coast remain mobile to the south of the sea dyke built in 1859 (Fig. 2). The sector known as the *Étangs et marais des salins de Camargue* (former Camargue saltworks) is one of areas with a mobile coastline. Between 1942 and 2012, Beauduc Point advanced 950 meters into the sea, while Véran Beach retreated by 435 meters. The retreat was recently exacerbated by the collapse of a four-kilometre rock-filled dyke due to underground erosion by waves or "scouring." The loss of this dyke, which was built to protect the salt ponds formerly used for the pre-concentration of saltwater from seastorms, has made it possible to re-establish the coastal dynamics with the return of a wide sandy beach that had disappeared. While it is true that the coast has retreated, it has also created a new natural defence area that can adapt to the currents and sea levels in the upcoming decades.

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[1] IPCC climate projections are based on scenarios of rates of greenhouse gas (GHG) emissions whose concentration in the atmosphere is correlated with global warming; our analysis is based on RCP8.5 scenario

[2] The Rossby Centre Regional Climate Model RCA4

[3] The lengths of flooding in 2050 and 2100 and volumes of water (estimated with mar-o-sel.net software)

Retrospective 2019

MANY VISITORS DISCOVERED THE ESTATE ON OUR OPEN DAY

© L.Parent

WATER IN ALL ITS STATES, 1ST PRIZE OF THE 2019 FRIENDS OF THE TOUR DU VALAT PHOTO CONTEST
© JOSIANE GLAUDON

© T.Branquart - MAVA

The Tour du Valat taking part in the "MAVA Academy," a wonderful human and professional experience.

BUILDING THE NEXT PROGRAMME TOGETHER, IMAGINING A NEW WAY OF ORGANISING OUR WORK...

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© Tour du Valat

POWERED BY COLLECTIVE INTELLIGENCE

"The Mediterranean and climate change" - visits and discussions with the Mediterranean journalists for the environment platform in Sardinia

© UICN - F.Ardau

Agrobiodiversity discussion with our Alpina-Savoie partners

© Tour du Valat

CONVINCING...
and promoting nature-based solutions to Members of Parliament

Thanks to our partners and to the MAVA Foundation, let's not erase coastal wetlands from the map! **"Off your map" workshop in Montenegro**

© Tour du Valat

© Tour du Valat

GRAPE HARVEST TIME ON OUR AGRO-ECOLOGICAL PETIT SAINT-JEAN ESTATE

© J.Jalbert

Signing the French Global Environment Facility agreement supporting the civil societies of 10 Mediterranean countries

© Tour du Valat

© J.Biquet

A new look for our 1954 lab

OBSERVATORY
DEPARTMENT

Observatory of Mediterranean wetlands

Fishing site
in Sardinia
© IUCN - F.Ardau

The Mediterranean Wetlands Observatory (MWO) is a wetlands monitoring unit developed in the framework of the MedWet Initiative and the Ramsar Convention. Its two main objectives are to:

- analyse the status and trends of Mediterranean wetlands, their biodiversity, and the goods and services they provide, as well as the anthropogenic environmental factors that explain these trends;
- promote effective decision making.

Convey and convince

In 2019, in the aim of putting Mediterranean wetlands on the international agenda, the MWO mobilised its network actively before and during the IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) plenary session. Our messages advocating for the restoration of coastal wetlands, particularly as solutions for mitigating the effects of climate change, were transmitted all the way to China, where a conference was held to prepare the COP 15 of the Convention on Biological Diversity. Our results and messages were included in the Plan Bleu and MedECC assessment reports, and thanks to the political working group of MedWet, to which the MWO is an active member, we succeeded in having the restoration of wetlands be included in the "Green Deal" of the European Union.

The MWO's advocacy work contributed to concrete conservation actions in various countries. We were asked to help develop a national wetlands conservation strategy in Tunisia and to implement one in Algeria.

The MWO has become significantly involved in the coordination of training and skill-sharing workshops in which Mediterranean NGOs participate. This project has obtained funding from Agence Française de Développement (AFD) and the French Global Environment Facility (FFEM). The MWO works with the Mediterranean Waterbird Network within the framework of this project to help Mediterranean NGOs better manage and conserve wetlands.

Understand and manage

The censuses conducted by the Mediterranean Waterbird Network are once again being exploited to investigate the impact of global changes on wetland biodiversity. We are conducting this work in a partnership with the Muséum National d'Histoire Naturelle (MNHN).

At the same time, we are gathering the data required to update our indicators. Through this work we have already updated the land cover maps of 300 wetlands for which our previously most recent data were from 2005. On the other hand, significant effort was devoted to biodiversity monitoring research that will be used to establish a Living Planet Index and compare the trends in different ecosystems in the Mediterranean Basin.

Our Department made a significant contribution to the Tour du Valat's next scientific program (2021-2025) through prospective analyses that identified the main problems of the future and the significant research required for the conservation of Mediterranean wetlands from now until 2050.

In collaboration with the other Tour du Valat departments and the DYNAFOR laboratory at the INRA (French National Institute for Agricultural Research), the MWO has developed research on farming and biodiversity in wetlands. It is important to remember that farming is the sector with the biggest impact on Mediterranean wetlands. Our research is funded by the Alpina-Savoie corporation and the French Ministry of Agriculture and Food.

New members join our team

Maud Borie was recruited by our Department in May 2019. She studied both political science and ecology, and will develop her research on the theme of governance and help us achieve our goal of influencing decision makers.

Pierre Mallet started his doctoral research on biodiversity monitoring in field crops in the Camargue, and his goal is to identify the agro-ecological infrastructure that benefits birds and dragonflies.

© H.Hôte / Agence Caméléon

Fabien Verniest also began his doctoral thesis on how the network of protected areas will adapt by 2050 and 2100. His research model is based on waterbird communities that winter in the Mediterranean Basin.

Juliette Biquet (a civic service volunteer) and Eleonora Saccon (a European volunteer) have further strengthened our team and to a large extent they are now completing the Living Planet Index project.

Ilse Geijzendorffer and
Thomas Galewski
DEPARTMENT
COORDINATORS

The Observatory team

FROM LEFT TO RIGHT:

Nigel Taylor, Eleonora Saccon, Anis Guelmami, Juliette Biquet, Christian Perennou, Lorena Segura, Suzanne Catteau.

MISSING FROM THE PICTURE:

Thomas Galewski, Ilse Geijzendorffer, Pierre Malet, Fabien Verniest.

OBSERVATORY PROJECTS

Former salt works, Ulcijn, Montenegro
© C.Hermeloup

1 - Conservation Evidence: Wetlands

Nigel Taylor / taylor@tourduvalat.org

Within the framework of the Conservation Evidence project (www.conservationevidence.com), we are producing syntheses of evidence for the effects of interventions to conserve wetland vegetation. The goal is to make the scientific evidence accessible to practitioners and decision-makers, such that it is systematically incorporated into their work, and wetland conservation becomes more effective.

This year was dedicated to synthesising evidence relating to the conservation of habitats dominated by emergent wetland vegetation (marshes and swamps). We have made steady progress collating and summarising over 500 studies, and compiling these into a synopsis with background information and key messages. The evidence synthesis for emergent wetland vegetation will be published in 2020. We obtained a six-month extension of the project thanks to funding from the MAVA Foundation, which will allow us to complete this work to a high standard.

We published an article giving an overview of the Conservation Evidence methodology, and how it helps to bridge the gap between science and practice. We also published a summary article for our previous synthesis on peatland vegetation. This was an opportunity to give an overview of the evidence base for peatland conservation, whilst critically discussing the content and methods of the synthesis.

In July, we outlined some critical issues regarding the use of evidence in wetland conservation at the International Congress on Conservation Biology.

2 - Mapping wetlands and developing georeferenced databases

Anis Guelmami / guelmami@tourduvalat.org

Our goal is to develop and promote geo-referenced data, make the data interoperable, and facilitate cross analyses. We aim to better characterise Mediterranean wetlands and to better understand the links that exist between the trends observed and the factors of change.

A geo-platform has been created in order to centralise all of the pan-Mediterranean georeferenced databases produced and/or collected by the MWO. This geo-platform will eventually integrate information on protected areas, dams and reservoirs, land occupation, and other data relevant to the Observatory. Knowing where wetlands are located and their extent is critical to improving knowledge about these habitats. An exhaustive mapping of Potential Wetlands at the Mediterranean Basin scale has thus been initiated. It aims to model the entire area based on the probability of finding wetland habitats. It will also make it possible to identify potential candidates for restoration projects such as former wetlands that have been converted to agriculture.

Finally, using the new Sentinel-2 satellite imagery, a large part of the MWO land occupation database was updated in 2019. This work has enabled us to provide the Directorate General of Forestry in Algeria with recent maps for the 50 Ramsar sites in Algeria, in order to produce a new Atlas of wetlands.

3 - Ecosystem services

Ilse Geijzendorffer / ilse@tourduvalat.org

Our goal is to engage both society and decision-makers on the importance of the proper functioning of wetlands for populations in the Mediterranean Basin. This advocacy work is based on the knowledge already acquired– and continually updated through research on trends in the ecosystem services provided by wetlands at the Mediterranean scale.

In 2019, our advocacy was based on the results of our second *Mediterranean Wetlands Outlook* report and the discussions that took place during a workshop co-organised by the Tour du Valat, Plan Bleu, Wetlands International, and other NGOs. This advocacy draws attention to the importance of wetlands for human well-being and for achieving the sustainable development goals, and has resulted in a policy note that was distributed at the plenary session of IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services).

In addition to this event, a master's degree study examined the changes that would affect all Camargue ecosystem services if the amount of fresh water currently pumped from the Rhone by rice farmers were to be reduced.

This is a pressing issue, given the climatic and economic crises facing farmers in the delta today. The study was conducted through interviews with Tour du Valat scientists and rice farmers.

The results were used as the basis of a model for future simulations relating to the impacts of a change in the hydrological regime in the Camargue.

Finally, we continued our studies within the GEO BON project on the essential parameters needed to monitor ecosystem services at multiple spatial scales.

Beautiful Sardinian wetlands © UICN-F.Ardau

4 - Biodiversity status and trends

Thomas Galewski / galewski@tourduvalat.org

Our goal is to better understand what is causing the decline in biodiversity in Mediterranean wetlands in order to suggest conservation actions.

In order to better anticipate the impact of global changes on waterbirds in 2050 and 2100, we continued our research on the roles of climate, of land and wetland artificialization, and of protected areas, on the diversity and the abundance of waterbirds. Fabien Verniest has started his research for a doctoral thesis to answer these questions.

The link between global changes and the trends in communities of species was also explored through local case studies. A report focusing on the trend followed by 1500 animal and plant species in the Camargue between 1970 and 2010 was published. A similar study, focusing on birds, has been initiated in the Gediz delta.

An assessment based on IUCN Red List criteria was completed for 500 species of Mediterranean wetland plants, providing a reference state for future assessments.

Mediterranean Tree Frog
© A.Granger

A large amount of new biodiversity monitoring data was gathered in order to produce a Living Planet Index for the Mediterranean Basin in 2020. This index will be broken down by biome (marine, terrestrial, freshwater) and ecosystem (wetlands, forests, etc.). We are counting on the media power of this indicator to raise awareness on the fate of biodiversity in the Mediterranean Basin.

5 - Local and national observatories

Christian Perennou / perennou@tourduvalat.org

Our goal is to support any initiative designed to set up a local or national wetland observatory in a Mediterranean country.

In order to arouse interest in these mechanisms, we have organized a training course attended by representatives of a dozen Mediterranean NGOs. Through a methodical series of steps, it covered how to define the goals and set the scope of an observatory, as well as its indicators and methods, and how to promote the results among nature conservation professionals, the general public, and other audiences. Various existing observatories, such as the French National Biodiversity Observatory (ONB) and the Monitoring System of Lake Ichkeul in Tunisia, were cited as examples. Several interns brought potential case studies from their countries where there is a real interest for Observatories, and they were the basis for fruitful group work. Several interns are already planning to begin implementation at their sites in 2020.

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We also continued our support for the French National Biodiversity Observatory (ONB–run by the French Biodiversity Agency) by facilitating the “Wetlands” thematic workshop. Several new indicators were developed and added to our online indicator portal (http://indicateurs-biodiversite.naturefrance.fr/fr/questions/zones-humides). For example, ones on the drying up of small streams in the summer, on waterbird populations, and on the participation of the general public in “Wetlands” activities proposed during the main national events.

6 - Wetlands in the framework of sustainable development in the Mediterranean

Maud Borie / borie@tourduvalat.org

Activities in this area include, on the one hand, the development of the Mediterranean Wetlands Alliance (MWA–see Focus), and, on the other hand, research on how to create interactions between existing bodies of knowledge on wetlands, such as the knowledge produced by the MWO, and public policies at the Mediterranean scale. The goal is to improve the impact and influence of such knowledge.

In this context, several actions have been carried out in order to assess the overall impact of the second edition of our *Mediterranean Wetlands Outlook* report (MWO2). A survey was designed and disseminated, in French and English, to wetland management stakeholders, Ramsar focal points, and environmental organisations to whom the report is addressed. The results of this survey are currently being analysed to understand how MWO2 is being used and to make recommendations for the next version (MWO3), so it will be more relevant and have more impact. In parallel to this e-mail consultation, several 'country missions' were carried out to interact directly with key stakeholders in the countries and to better support them. A mission took place in Tunisia, in the framework of a national wetland strategy meeting, and another one in Albania, which has resulted in advocacy action on coastal wetlands by the Alliance. In addition, several people from the Observatory have collected feedback on MWO2 during their missions in Algeria and Morocco.

In terms of the Alliance's actions, in addition to the activities described in the Focus section, several sensitive sites have been identified for potential activation within the Red Alert Mechanism project that has been developed with Doga Denergi (Turkish NGO). The actions focus in particular on the Sebkha Sejoumi site south of Tunis. Research on how to mobilise civil society for the protection of wetlands has been initiated in order to better understand the multiple issues emerging around controversial sites, and to formulate management recommendations.

Flamingos and Avocets in the Camargue © G.Wasse

FOCUS

Civil society: a key stakeholder in the sustainable management of Mediterranean wetlands

While wetlands have drastically declined throughout the world since the second half of the 20th century, the situation is even more alarming around the Mediterranean Basin. Indeed, whereas 35% of all wetlands have disappeared since 1970 - already a high figure -, the loss stands at 48% in the Mediterranean region (see the report *Mediterranean Wetlands Outlook 2: Solutions for sustainable Mediterranean wetlands*).

Some of the well-known reasons include high demographic pressure (particularly in coastal areas), the increasingly rapid conversion of wetlands into farmland, a sharp increase in water demand, industrial and urban development, pollution, and recurring political instability. These pressures tend to combine in the Mediterranean Basin, which means that natural habitat and biodiversity conservation are often relegated to the background.

While threats to natural habitats are often the most significant in the least developed countries in the Basin, the inhabitants there are also, paradoxically, those that would benefit the most from natural habitats in good condition, because of their greater socio-economic vulnerability.

A project focusing on the Southern and Eastern Mediterranean

Based on this observation, in October 2018, the Tour du Valat launched an ambitious project in Tunis focusing on seven countries in the Southern and Eastern Mediterranean (Algeria, Morocco, Tunisia, Jordan, Lebanon, Libya, and Turkey) with financial support from Agence française de développement (AFD). In November 2019, Albania and Montenegro also joined this project within the framework of a new financial agreement made under the French Global Environment Facility (FFEM).

The goal of this project is to take better account of wetlands in decisions having to do with local development and land-use planning issues in the Southern and Eastern Mediterranean regions. Such achievements would require capacity building for civil society so that it can take more effective action for wetland management and influence the sectors of development that have an impact on them, particularly those that are responsible for degrading these habitats.

Training course of the MedWaterbird Network- Tunisia © H.Azazaf

Partner-based training

Several technical training workshops were organised by the Tour du Valat in Turkey, Jordan, Albania, and in the Camargue: 1. How to restore wetlands; 2. How to advocate and lobby for wetlands; 3. How to develop an environmental education programme focusing on wetlands; 4. How to manage the different types of threats facing wetlands; 5. How to develop a national or local Wetlands Observatory. These training sessions were designed using a partner-based approach. In other words, our partner non-governmental organisations (NGOs) are involved as both trainers and trainees, according to their degree of expertise on the themes proposed. In addition, our partner NGOs who benefit from the training will replicate it as of 2020 for emerging NGOs in their countries, thereby multiplying the effects of our joint project. Forums have also been organised to identify the principal current issues or the ones expected to emerge in the medium term concerning Mediterranean wetlands. Finally, starting in 2020, about fifteen micro-projects are going to be implemented in the field, in the nine countries involved in the project. Backed by either our partner NGOs, or by young emerging NGOs that our partner NGOs will help supervise and train, these micro-projects will be concrete examples that illustrate this initiative.

This project helps strengthen three other projects started by the Tour du Valat: the Mediterranean Wetlands Alliance, the Mediterranean Wetlands Observatory, and the Mediterranean Waterbird Network (MWN), and strives to foster synergies among the various members of these networks.

Officially created in 2017, the Mediterranean Wetlands Alliance (MWA) is a network of 24 NGOs and scientific institutions from the Mediterranean Basin. It aims to work with others to increase the visibility of wetlands in the Mediterranean society and in particular in national, regional, and international policies by promoting their sustainable use, based on innovation and the development of best practices as catalysts of change.

To fulfil its mission and ensure its impact and effectiveness, the Alliance intends to:

1. Develop interactions, knowledge exchange, and experience sharing with and between its members - in particular by setting up a digital platform;
2. Strengthen the capacity of civil society in order to increase its effectiveness in terms of wetlands management and conservation, which is the goal of the training conducted within the AFD-FFEM projects;
3. Effectively link local, national, and regional initiatives and stakeholders through joint actions;
4. Increase the overall visibility of wetlands through joint communication operations that highlight the solutions they offer for mitigating global changes.

A ‘red alert’ system is one of the main mechanisms the MWA has been developing within this framework. It can be used by all civil society organisations (both members and non-members of the Alliance), to draw attention to a threatened wetland.

In addition, this project also relies a great deal on the network of civil society organisations already created by the Tour du Valat in recent years throughout the Mediterranean Basin, notably within the framework of the Mediterranean Waterbird Network.

Outing during a training course in Jordan
© N.Hamidan-RSCN

PROJECT CO-COORDINATORS: Laura Dami, Christian Perennou

MEMBERS OF OUR TEAM DEDICATED TO THIS PROJECT: Laura Dami, Christian Perennou, Maud Borie, Jean-Jacques Bravais, Nicole Bonfils

PARTNERS: Society for the protection of animals and nature (SPANA, Morocco) Research group for the protection of birds in Morocco (GREPOM), Algerian National Bird Association (ANAO), WWF North Africa (Tunisia), Tunisian Association “Les Amis des Oiseaux (AAO) /Birdlife, Libyan Society for Birds (LSB), Society for the Protection of Nature in Lebanon (SPNL), Royal Society for the Conservation of Nature (RSCN, Jordan), Doğa Derneği (DD, Turkey), Ornithological Research Center (ORC, Turkey), Institute for Nature Conservation in Albania (INCA), Centre pour la Protection et la Recherche sur les Oiseaux (Center for Bird Protection and Research, CZIP, Montenegro).

FINANCIAL PARTNERS: Agence Française de Développement (AFD), French Global Environment Facility (FFEM), TOTAL Foundation, French Ministry of the Environment, Prince Albert II of Monaco Foundation, French Biodiversity Office, 12 NGO partners.

David Vallecillo,

PHD STUDENT

“ Modelling is more than a job, it's a real passion! What a wonderful environment to model the distribution of wintering ducks in the Camargue. ”

OUR ACHIEVEMENTS

Knowledge transfer is central to the Tour du Valat's mission, and a great amount of effort is made to achieve that goal. Communication in the scientific world, through publications and talks, and making the results of our research available to potential users (site managers in particular), are major activities for our teams.

We published a wide range of articles in international journals, with 49 publications by the end of 2019.

AMONG THE WIDE VARIETY OF SIGNIFICANT TOUR DU VALAT PUBLICATIONS, WE CAN CITE FOUR IN PARTICULAR:

- The following study exploits the biodiversity knowledge of local experts to analyse four decades of changes and their likely causes, namely hydrological management, pollution, habitat change, and the arrival of new species, some of which invasive. *Fraixedas S., Galewski T., Ribeiro-Lopes S., Loh J., Blondel J., Fontes H., Grillas P., Lambret P., Nicolas D., Olivier A., Geijzendorffer I.R. 2019. Estimating biodiversity changes in the Camargue wetlands: An expert knowledge approach. PLOS ONE 14(10):e0224235. DOI : http://dx.doi.org/10.1371/journal.pone.0224235*
- Climate change is going to have a considerable impact on Mediterranean wetlands. The modelling described in our paper makes it possible to assess the changes in seasonally flooded marshes where a decline is expected for about three-fourths of them. It also provides nature site managers with a tool for evaluating the impacts of these changes on the hydrological functioning, vegetation, and wildlife populations. *Lefebvre G., Redmond L., Germain C., Palazzi E., Terzago S., Willm L., Poulin B. 2019. Predicting the vulnerability of seasonally-flooded wetlands to climate change across the Mediterranean Basin. Science of The Total Environment 692:546-555. DOI : http://dx.doi.org/10.1016/j.scitotenv.2019.07.263*
- The long-term monitoring of bird populations is crucial for understanding their population dynamics. However, the related disturbances can have a negative impact on the breeding success of these populations. Our study proposes a method for evaluating the impacts on colonial waterbirds, and it enabled us to conclude that these is no impact on four heron species in multi-species colonies. *Champagnon J., Carré H., Gili L. 2019. Effects of research disturbance on nest survival in a mixed colony of waterbirds. PeerJ 7:e7844. DOI : http://dx.doi.org/10.7717/peerj.7844*
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Photo break during the Science Council
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Book chapters [X]: number of chapters in which the author has participated

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Conveying and convincing

In addition to the many scientific papers and technical reports we publish, every year we conduct many knowledge transfer and awareness-raising activities. These activities are essential to our mission of "Ensuring the preservation and wise use of Mediterranean wetlands by improving our knowledge of their functioning and mobilising a community of stakeholders."

To reach our different targets, such as nature site managers, academics, elected officials, students and the general public, we provide training modules, produce videos, publish brochures and reports, relay awareness-raising campaigns, contribute to TV reports and press articles, and organise events, lectures, and seminars.

We started 2019 with a conference in Marseille to raise the **awareness of decision-makers** on the importance of healthy systems and nature-based solutions for adapting effectively climate change. This conference was organised in collaboration with MedWet, Plan Bleu, the IUCN Centre for Mediterranean Cooperation, the IUCN French Committee, the French Coastal Protection Agency, and with support from the City of Marseille. On this occasion, This Summary for policy makers, "Outsmart climate change: work with nature! Enhancing the Mediterranean's climate resilience through nature-based solutions" was produced and distributed.

The Tour du Valat also presented its studies on the lagoons and marshes on the former Camargue saltworks site, and promoted nature-based solutions to a Parliamentary delegation in Paris.

Internationally, the Tour du Valat and the Mediterranean Wetlands Alliance relayed awareness-raising campaigns and questioned several Mediterranean decision-makers on the future of wetlands and natural areas in their countries.

Welcoming journalists

In the autumn, as part of the "Off Your Map" campaign on coastal Mediterranean wetlands, we welcomed in Sardinia, together with members of the IUCN Med and MedWet teams, a delegation of 25 members of the Mediterranean Platform of Environmental Journalists.

On this occasion, they received a media kit entitled "Wetlands in a warming world: Why the Mediterranean needs nature-based solutions," as well as the second MWO report "Mediterranean Wetlands Outlook,solutions for sustainable Mediterranean wetlands," which presents the current state and trends of wetlands and provides guidance and solutions for decision-makers.

The delegation of journalists was able to meet many wetland stakeholders including socio-professionals, elected officials, academics, and associations, and discuss with them the impact of climate change on their daily lives.

To celebrate the 10th anniversary of the adaptive restoration project of the "lagoons and marshes on the former Camargue saltworks site," we welcomed a delegation of journalists who made several reports.

Training sessions

Training Session in Azraq, Jordan © N.Hamidan - RSCN

We have also been offering training sessions organised around the Mediterranean, within the Mediterranean Waterbird Network, the Mediterranean Alliance for Wetlands, and the "Civil Society, NGOs and Wetlands" project financed by Agence Française de Développement (AFD) and the French Global Environment Facility (FFEM). Several sessions were organised in 2019, in Turkey, Jordan, Albania, and the Camargue.

We regularly **welcome university students** to exchange, share our results, and build future collaborative projects.

Students from Harvard University came to visit us within the framework of a project on land-use planning in the Camargue.

Conferences & Seminars

We also regularly organise **symposia, conferences, and seminars** in which we invite scientists who mainly work on the conservation of Mediterranean wetlands. In November, as part of the annual series of conferences about conservation biology that we have initiated to highlight Heinz Hafner's work on the conservation of waterbirds and wetlands, we welcomed Anne Charmantier, Director of Research at the CEFE-CNRS Montpellier, to present the lecture "Studying evolution in action in cities: is there a Great Tit urban ecotype?".

Events

Several events were organised for World Wetlands Day and European Heritage Days, which the Mediterranean Lagoons Transfer Unit relayed by listing all of the activities and events carried out around the French Mediterranean (Corsica, Occitania, and Provence-Alpes-Côte d'Azur). Additionally, we organised several field trips and school activities as part of the Camargue festival. The Friends of the Tour du Valat association also had, for the first time, a booth for the entire duration of the festival. During our Open Day, we experimented with transferring knowledge to our visitors through cocktail-quizzes (with no alcohol) organised by our civic service volunteer Louisiane Burkart.

Through our knowledge transfer activities, we also published brochures and produced media reports, such as the Thalassa TV show about the Camargue.

"Nature Based Solutions"
brochure available in English and French

Find out more about our projects on our new library portal tourduvalat.centredoc.fr and on our general website **www.tourduvalat.org.**

This conference can be watched online on our Tour du Valat Vimeo account

Resource Centre François Bourlière Library

The Tour du Valat Resource Centre has been in existence since 1954. It was initially made up of documents from the personal library of the Tour du Valat's founder Luc Hoffmann. The Library is dedicated to François Bourlière (1913-1993), a pioneer in ecological conservation who was deeply committed to working with Luc Hoffmann and to the Tour du Valat.

The library's reference material, at first devoted mainly to ornithology, has been built up to include related fields of research, ecology, ethology and particularly the knowledge and the sustainable management of Mediterranean wetlands:

- 6000 publications and thesis
- 490 different periodicals of which 71 are running
- 39 946 offprints, booklets and reports

A Resource Centre open to all

- The Resource Centre is open to everyone, from Monday to Friday from 9.00 to 12.00 and from 1.00 to 5.30. It offers Wi-Fi -connected workstations, access to all documents, and the assistance of a librarian.
- Thanks to our library portal, **tourduvalat.centredoc.fr**, the centre enables any internet user to:
  - discover the most recent publications by Tour du Valat researchers;
  - carry out bibliographical research in the document collection;
  - consult thematic selections of documents from the collection;
  - view summaries of journals received by the Library;
  - find out about the Library's newly acquired works;
  - open an on-line reader account to benefit from a range of custom used services: saving of research results, and the possibility to create alerts or to generate an RSS flow so as to be automatically informed of any new addition to the collect on that corresponds to the user's centres of interest

Tour du Valat

- Tour du Valat Resource Centre - François Bourlière Library
  Le Sambuc - 13200 Arles
  Tél.: +33 (0)4 90 97 29 76
  Email: biblio@tourduvalat.org
  Document Portal: **tourduvalat.centredoc.fr**

Johanna Perret,
EXECUTIVE ASSISTANT

“I've been on the job for three years and I've been contributing, as I can, to the well-being of employees. For instance, through the implementation of ergonomic equipment, or the drafting of a document concerning professional risks. No time to get bored in my role as assistant to the Administrative and Financial Director!”

Media

In 2019, there were 207 instances of media coverage of our work, including 7 television reports, 197 articles in the French press, and a few articles in other Mediterranean countries (Morocco, Tunisia, Greece, and Sardinia-Italy). Some of the topics that received the most coverage were **the adaptive restoration project of the lagoons and marshes on the former Camargue saltworks site**, featured in four television reports (including one in the travel documentary show Thalassa), and an AFP dispatch which was followed by many articles. Our conferences and studies focusing on **climate change and the Camargue** were also closely followed and generated many interviews.

Other widely covered **scientific activities** featured in two AFP dispatches highlighted, on the one hand, the **regulation of hunted species** and, on the other hand, **the ringing of the first colony of Eurasian Spoonbill established on the Bages-Sigean lagoon.** The visit of Jean Jalbert, our director general, who was invited within the frame of **the official visit of the President of the Région Sud Provence-Alpes-Côte d'Azur in Tunisia**, has been mentioned in several media. Our collaboration with Alpina-Savoie in agrobiodiversity, as well as the topics of mosquito control and Greater Flamingos (including sponsorship) also received good media coverage.

The Tour du Valat took part in many events (the Camargue Festival, the ConversARTSciences, several café-debates including the screening of the film *Marais d'Irak, Soif d'avenir-Marshes of Iraq: A Thirst for the Future*, and the Science Festival). The Tour du Valat also organised several events including an Open Day, and conferences organised by the Friends of the Tour du Valat association. These events brought together a large audience.

Tour du Valat 2.0

The number of Facebook and Twitter followers has been constantly growing. At the end of 2019, the Tour du Valat Facebook page had 2,626 followers (+23%) compare to 2018, while we had 1,248 followers on Twitter (+29%). The LinkedIn page counted 515 followers (+81%).

On average, our Facebook posts are viewed by nearly 1,100 users, and register 33 interactions (sharing and likes). On Twitter, we have an average of 660 views and 9 interactions (retweets and comments) per publication. 80 videos are online on our Vimeo account, with 3,965 views in 2019.

Thalassa report

On the 25 March 2019, the Thalassa TV report about lagoons in the Camargue and in Venice was broadcasted. It included many top-quality reports covering wetlands and the various projects in which the Tour du Valat is involved (our study of flamingos, project on the lagoons and marshes on the former Camargue saltworks site, fish and vegetation monitoring), with the participation of Charlotte Perrot, Delphine Nicolas, Marc Thibault, Hugo Fontes, and Jean Jalbert.

- 2019 in numbers -

2,626 followers | **297** publications | **327,183** views
22,962 engaged users **(+23%)**

1,248 followers | **279** tweets | **185,074** views
2,579 engaged users **(+23%)**

Most popular and shared publications on social media

- "Giving Tuesday" Donation campaign and sponsoring of Greater Flamingos
- Birds (World Migratory Bird Day and bird sightings)
- Thalassa TV report on the Camargue
- Tour du Valat publications
- "Off Your Map" campaign on coastal wetlands
- Internship and civic service job offers

A dream team for communicating and making friends

Alina Cotutiu,

CANTEEN AND BUILDING MAINTENANCE

“I enjoy contributing to the smooth running of the canteen and the maintenance of the buildings, as part of a friendly team!”

OUR ORGANISATION

The Tour du Valat is a non-profit foundation with two management bodies that handle its governance: the Board, made up of three colleges - the Founders, Ex-officio members, and Qualified personalities -, and the Science Council, a body of internationally acclaimed scientists from major fields of wetlands research and conservation.

The functioning of the Board has adapted in response to technological developments, by adding to its administrative policies and procedures the possibility for members to participate in meetings remotely by video conference. This will make it possible to reduce the carbon footprint of the meetings, ensure that there is less stress in terms of holding meetings and validating the deliberations, and bring together the members of the board who are, because of their skills, often called upon to travel abroad when our institutional meetings are held.

We mourn the passing of **Laurent Mermet** (1956-2019), who had joined the governance of the Foundation in 2011, and who brilliantly presided over the Science Council from 2017 to 2018, the end of his second term. Laurent fought against his illness courageously, but also with serenity and altruism, putting his last strength into transmitting his knowledge. His influence has been significant in shaping the Tour du Valat's strategy, but has also influenced many other environmental organisations. The Tour du Valat paid tribute to him at various gatherings in his memory.

The Science Council is regularly renewed as we allow a four-year term that is renewable only once. The Science Council is being strengthened from the current six members and six thematic experts to ten members starting in 2021. In 2019, the Science Council, presided by Patrick Duncan, thus welcomed Timothy Swanson, an environmental economist, holder of the André Hoffmann Chair at The Graduate Institute of International and Development Studies in Geneva, and Yann Laurans, Director of the Biodiversity and Ecosystems Programme at the Institute for Sustainable Development and International Relations (IDDRI). Their fields of expertise are crucial for meeting the challenges of tomorrow.

Budget

THE BUDGET FOR THE YEAR 2019 AMOUNTS TO 5,608,000 EUROS

Expenditure

- **3,510,000** euros have been allocated to the scientific programmes, including **840,000** euros for the "Conservation of species and their populations in the context of global changes" department, **1,489,000** euros for the "Ecosystem modelling, restoration and management" department, **301,000** euros for the "Monitoring and evaluation & wetlands policies" department, **474,000** euros for the management of the estate, and **406,000** euros for shared scientific activities (scientific management, conferences, training, transfer, project development, etc.).
- **366,000** euros have been allocated to general management (including the governance of the organization as well as the representation of the Tour du Valat in major forums) and to communication (website, annual report, etc.).
- **104,000** euros have been allocated to managing the Tour du Valat library, principally the purchase of books and scientific journals.
- **1,628,000** euros have been allocated to ancillary services, which include financial and administrative services, the canteen, building maintenance, and the repairs workshop.

Tour du Valat receives its financing from a number of sources

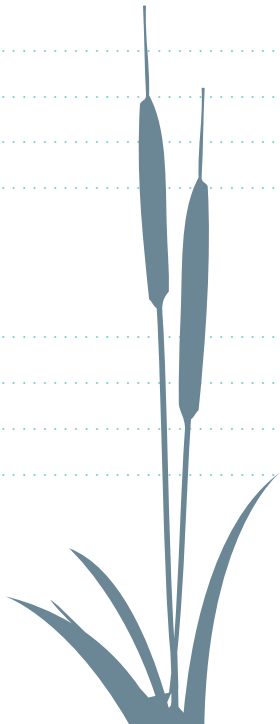
- **50**% of its receipts come from the MAVA Foundation (2,796,000€)
- **29**% of its receipts come from partnership agreements with public organisations (1,630,000€)
- **8**% of its receipts come from its own funds, held by the Pro Valat Foundation (458,000€)
- **7**% of its receipts come from partnership agreements with other private organisations (370,000€)
- **6**% of its receipts are revenues from the estate (354,000€)

Expenditures in euros

Scientific programmes	**3,510,000€**
General management / Communication	**366,000€**
Library	**104,000€**
Ancillary services	**1,628,000€**
Total général	**5,608,000€**

Receipts in euros

Core funds	**458,000€**
Agreements with private organisations	**3,166,000€**
Agreements with public organisations	**1,630,000€**
Revenues from the Estate	**354,000€**
Total général	**5,608,000€**



Governance

The board
© Tour du Valat

BOARD

College of founders

- André Hoffmann . . . . . President
- Maja Hoffmann . . . . . Vice-president
- Vera Michalski-Hoffmann
- Isabel Hoffmann

College of ex officio members

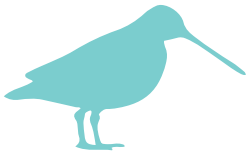
- Michel Chpilevsky . . . . . Sub-prefect of Arles, representing the French Home Office
- Marc Savasta . . . . . Regional representative for Research and Technology, representing the French Ministry for Higher Education and Research
- Helène Souan . . . . . Regional Directorate for Environment, Planning and Housing, representing the French Ministry of the Environment
- Hervé Schiavetti . . . . . Mayor of Arles, representing the Town Council of Arles

College of experts

- Dr Gordana Beltram . . . . . Ministry of the Environment and spatial Planning (Slovenia)
- Dr Clairie Papazoglou . . . . . Consultant in European policies for NGOs (Cyprus)
- Antonio Troya . . . . . Treasurer, Director of the IUCN Center for Mediterranean Cooperation (Malaga, Spain)
- Dr Tobias Salathé . . . . . Secretary, Ramsar Senior Advisor for Europ (Gland, Switzerland)
- Thymio Papayannis . . . . . Honorary member - MedWet senior adviser, President of MedINA (Greece)

SCIENCE COUNCIL

- Dr Patrick Duncan . . . . . President, CNRS Chizé, (France)
- Prof. Debbie Pain . . . . . Vice-president, Honorary Professor, School of Biological Sciences, University of East Anglia; Honorary Research Fellow, University of Cambridge (Great Britain)
- Dr Wolfgang Cramer . . . . . IMBE (France)
- Dr Teresa Ribeiro . . . . . European Environment Agency (Denmark)
- Dr Yann Laurans . . . . . IDDRI (France)
- Prof. Timothy Swanson . . . . Graduate Institute of International and Development Studies, holding the André Hoffmann Chair in Environmental Economics (Geneva, Switzerland)



Thematic experts

In support of the Science Council, a high level of expertise will be provided by thematic experts for each of the Tour du Valat programmes, and for the duration of the five-year plan.

- Dr Jacques Blondel . . . . . CEFE/CNRS, Montpellier (France)
- Dr Luis Costa . . . . . MAVA Foundation (Switzerland)
- Dr Jonathan Loh . . . . . Institute of Zoology of London (Great Britain)
- Dr François Renaud . . . . . Institut de Recherche pour le Développement, CNRS (France)

Our Eco-responsibility for a sustainable world

The guiding principles of our eco-responsible approach include testing and implementing the solutions of the future, developing concrete, operational responses appropriate to the Mediterranean context, and disseminating them extensively:

ENERGIES

- 2019 was marked by the renovation of the energy system and architecture of the building that houses most of the Foundation's offices. Known as the "Laboratory", it was built in 1954, and represents the beginning of the adventure at the Tour du Valat Biological Station (as it was then called). This renovation work included: 1. thermal insulation from the outside with rice husks from the Camargue and wood fibre; 2. "Trombe" walls to optimize heat gain from the sun on the south side of the building in the winter; 3. replacement of all stainless steel frames with efficient double glazing in French wood 4. refurbishment of the common areas; 5. installation of air fans 6. optimization of air circulation within the building to improve night cooling in the summer, and 7. installation of sunshades. A wide range of low-energy techniques using bio-sourced materials to make this thermal renovation exemplary.

TRANSPORT POLICY

- Facilitation of carpooling and public transport;
- Our car fleet is being optimised by decreasing the number of vehicles and purchasing fuel-efficient and low maintenance cost vehicles of the same type;
- National and international trips have been limited by prioritising the use of tele- or video conferencing, and the use of less expensive, low-ecological-footprint means of transport;
- Purchase of three electric vehicles, use of electric and mountain bikes on the Tour du Valat Estate.

WASTE

- 100% of our wastewater is treated by our reed bed water treatment plant;
- 100% of our waste is sorted, with fermentable waste repurposed on-site (compost), and the rest is recycled via specialised processing chains.

PRODUCTION & CONSUMPTION

- On the Petit Saint-Jean Estate, an innovative agro-ecological pilot project that includes winemaking, agroforestry, orchards, annual crops and fodder, pastoralism, and aims to optimize the synergies between agricultural and natural environments while limiting the consumption of water, inputs and fossil fuels, and testing out farming practices that are adapted to a changing climate;
- Our herd of 350 Camargue cattle has been grazing on the open range for 13 years, in compliance with organic agricultural specifications, and with no additional feeding or anti-parasite treatment. The high-quality meat produced is sold via a local supply chain;

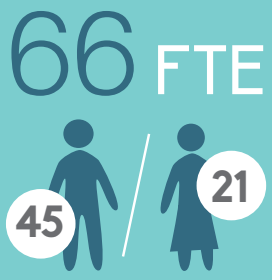
AB
AGRICULTURE BIOLOGIQUE

- Our canteen prioritises organic, locally produced, seasonal ingredients, using short supply chains and solidarity-based economic principles. It regularly provides vegetarian meals, prohibits the use of species whose stocks are threatened, and limits and repurposes waste;
- Finally, the Tour du Valat Works Council organises the bulk purchase of organic rice, olive oil, citrus fruit, and cleaning products.

OUR LIFEBLOOD

A new dynamic to build the future

Several members of our Management Committee will retire in the near future, just as we launch our new five-year plan (2021-2025). We have seized this opportunity to start a process of co-construction of the new programme while revisiting our internal organisation. *Atout Diversité* accompanied us in this process, helping facilitate discussions within the whole team through numerous workshops and moments of sharing and reflection. 15 employees attended a training module on the theme of "How to foster collective intelligence in meetings."



Many young recruits joined our team in 2019

Three European volunteers from Spain and Italy, 9 civic service volunteers, and 16 university interns brought their enthusiasm and valuable contribution to the dynamic scientific projects at the Tour du Valat.

Our success in seeking partnerships and funding has also allowed us to welcome two new Ph.D. students to the team: Pierre Mallet, in partnership with the French Ministry of Agriculture and Food, and Fabien Verniest, in partnership with the French National Museum of Natural History.

In 2019, the Tour du Valat team was comprised of 84 employees, with five additional doctoral and post-doctoral researchers who were hosted on a non-contractual basis, representing a total of 66 full-time equivalent jobs.

"Thank you all for your commitment to the Tour du Valat and to Mediterranean wetlands."

Us

Direction

- Jean Jalbert
  DIRECTOR GENERAL
- Dr Patrick Grillas
  PROGRAMME DIRECTOR
- Olivier Pineau
  DIRECTOR OF THE ESTATE
- Jean-Jacques Bravais
  ADMINISTRATIVE AND FINANCIAL DIRECTOR

Species Conservation Department

- Dr Arnaud Béchet
  RESEARCH SCIENTIST, DEPARTMENT COORDINATOR
- Antoine Arnaud
  RESEARCH TECHNICIAN
- Thomas Blanchon
  RESEARCH TECHNICIAN
- Dr Jocelyn Champagnon
  RESEARCH SCIENTIST
- Pascal Contournet
  RESEARCH TECHNICIAN
- Laura Dami
  PROJECT LEADER
- Clémence Deschamps
  PROJECT LEADER
- Christophe Germain
  PROJECT LEADER
- Yves Kayser
  RESEARCH ASSISTANT
- Inès Le Fur
  POST-DOCTORAL RESEARCHER
- Carole Leray
  RESEARCH TECHNICIAN
- Dr Delphine Nicolas
  RESEARCH SCIENTIST
- Oscar Sanchez Marcouzet
  POST-DOCTORAL RESEARCHER
- Timothée Schwartz
  PHD STUDENT (FUNDING CIFRE - ÉCOLE PRATIQUE DES HAUTES ÉTUDES - CEFE MONTPELLIER)
- Marie Suet
  PROJECT OFFICER
- David Vallecillo
  PHD STUDENT, UNIVERSITY OF MONTPELLIER (FUNDING FRANCOIS SOMMER FUNDATION)
- Dr Marion Vittecoq
  RESEARCH SCIENTIST

Ecosystem Modelling, Restoration and Management Department

- Dr Brigitte Poulin
  RESEARCH SCIENTIST, DEPARTMENT COORDINATOR
- Dr Lisa Ernoul
  PROJECT LEADER, DEPARTMENT COORDINATOR
- Dilara Aslan
  PHD STUDENT (UNIVERSITY OF AVIGNON, MEDITERRANEAN GRANT - FUNDING TOUR DU VALAT)
- Nicolas Beck
  PROJECT LEADER
- Dr Olivier Boutron
  RESEARCH SCIENTIST
- Olivier Brunet
  FARM MANAGER
- Julie Campagna
  PHD STUDENT, UNIVERSITY OF ANGERS (FUNDING TOUR DU VALAT, UNIVERSITY OF ANGERS, AGENCE DE L'EAU)
- Nathalie Chokier
  RESEARCH TECHNICIAN - COMMUNICATION OFFICER
- Tania de Almedia
  PHD STUDENT (FUNDING REGION PROVENCE-ALPES-CÔTE D'AZUR, UNIVERSITY OF AVIGNON AND THE PAYS DU VAUCLUSE)
- Hugo Fontes
  RESEARCH ASSISTANT
- Antoine Gazaix
  PHD STUDENT, UNIVERSITY OF MONTPELLIER (CO-FUNDING TOUR DU VALAT / SNCF RÉSEAU OC'VIA)
- Jawad Grii
  TECHNICIAN OF THE PETIT-SAINT-JEAN ESTATE
- Manon Hess
  PHD STUDENT, UNIVERSITY OF AVIGNON AND THE PAYS DU VAUCLUSE (CO-FUNDING CIFRE)
- Samuel Hilaire
  RESEARCH TECHNICIAN
- Philippe Lambret
  PROJECT LEADER
- Dr Gaëtan Lefebvre
  RESEARCH ASSISTANT, IT MANAGER
- Katia Lombardini
  PROJECT OFFICER
- Émilie Luna-Laurent
  RESEARCH TECHNICIAN
- Virginie Mauclert
  PROJECT LEADER
- Dr François Mesléard
  RESEARCH DIRECTOR
- Loïc Tendron
  FARM MANAGER - THE PETIT-SAINT-JEAN ESTATE
- Marc Thibault
  PROJECT LEADER
- Loïc Willm
  RESEARCH ASSISTANT

Mediterranean Wetlands Observatory Department

- Dr Ilse Geijzendorffer
  RESEARCH SCIENTIST, DEPARTMENT COORDINATOR
- Dr Thomas Galewski
  PROJECT LEADER, DEPARTMENT COORDINATOR
- Dr Maud Borie
  PROJECT LEADER
- Suzanne Catteau
  PHD STUDENT, BORDEAUX MONTAIGNE UNIVERSITY (FUNDING AGENCE DE L'EAU RMC / TOUR DU VALAT / CIFRE)
- Dr Élie Gaget
  POST-DOCTORAL RESEARCHER
- Anis Guelmami
  RESEARCH ASSISTANT

The team gathered to build the next program and imagine our new internal organisation
© Tour du Valat

- Pierre Mallet
  PHD STUDENT,, (CO-FUNDING MINISTÈRE DE L'AGRICULTURE ET DE L'ALIMENTATION, ALPINA-SAVOIE, UNIVERSITY OF AVIGNON)
- Dr Christian Perennou
  PROJECT LEADER
- Dr Alain Sandoz
  RESEARCH SCIENTIST
- Dr Niger Taylor
  POST-DOCTORAL RESEARCHER
- Fabien Verniest
  PHD STUDENT (UNIVERSITY OF PARIS 6 – MUSEUM NATIONAL D'HISTOIRE NATURELLE, CO-FUNDING REGION BRETAGNE, TOUR DU VALAT; TOTAL FOUNDATION)

Estate Management

- Damien Cohez
  DEPUTY DIRECTOR OF THE ESTATE – CONSERVATOR OF THE RESERVE
- Julien Bourjaillat
  GARDIAN
- Cédric Cairello
  ESTATE TECHNICIAN
- Frédéric Castellani
  ESTATE TECHNICIAN
- Dimitri Gleize
  ESTATE TECHNICIAN
- Roger Käslin
  MECHANIC - ESTATE TECHNICIAN
- Marion Lourenço
  TECHNICIAN - GUARD
- Yannick Michelier
  ESTATE TECHNICIAN
- Ludovic Michel
  ESTATE TECHNICIAN
- Anthony Olivier
  TECHNICIAN – GUARD
- Olivier Rey-Marbat
  ESTATE TECHNICIAN

Support Services

- Anne Ackermann
  EXECUTIVE SECRETARY
- Nicole Bonfils
  ACCOUNTANT
- Arnaud Charbonnier
  COOK
- Barbara Comabella
  CLEANING OFFICER
- Florence Daubigney
  EXECUTIVE SECRETARY
- Marie-Antoinette Diaz
  SECRETARY
- Kamel El Bachir
  ACCOUNTANT
- Roberta Fausti
  LIBRARIAN
- Stéphanie Gouvernet
  CLEANING OFFICER
- Coralie Hermeloup
  COMMUNICATION MANAGER
- Laura Marre-Cast
  FRIENDS OF THE TOUR DU VALAT ASSOCIATION MANAGER
- Johanna Perret
  EXECUTIVE SECRETARY
- Jean-Claude Pic
  CHIEF ACCOUNTANT - MANAGEMENT
- Josiane Trujas
  CLEANING OFFICER
- Gwenael Wasse
  COMMUNICATION OFFICER
- Sanae Zinouni
  ACCOUNTANT

Students

- Tamara Antonini, Mathilde Blanquet, Louisiane Burkart, Xabi Darthayette, Benoît De Freitas, Nathan Haveneers, Prudence Heu, Md Tawhid Hossain, Clémentine Leroy, Pierre Mallet, Aésane Meric, Mohammed Mrabet, Ekaterina Mutalapova, Maud Parent, Thomas Skinner, Mélanie Trémoureux.

Co-financed by the European Solidarity Corps from the European Union

European Volontary Service

- Ana Jara Navarro, Pelayo Menéndez Alvarez, Eleonora Saccon.

Civic Services

- Paul Cabrol, Mathilde Charpentier, Morgane Demêmes, Hugo Laurent Vidieu, Dorian Milesi, Florent Sabatier, Hugo Soares Ferreira, Benjamin Solgrain, Juliette Biquet.

Fixed Term Contracts (short period)

- Julien Birard, Alina Cotutiu, Anne-Sophie Hervy, Michel Lepley, Sophia Ribeiro Lopes, Géraldine Simon, Corinne Tayolle.

To join us

In order to help the Tour du Valat to continue its actions for the common good, we need your support. There are several ways to provide it.

JOIN THE FRIENDS OF TOUR DU VALAT ASSOCIATION

Friends of Tour du Valat

The association was founded in 2014, on the occasion of the 60th anniversary of the Tour du Valat. Its mission is to create a space that brings together those who share the values and the objectives of Tour du Valat. This great network gathers people who have worked, or still work, with the Tour du Valat as well as people who share similar values and are keen to support nature conservation. Joining the association means having the opportunity to take part in a range of "nature" activities while debating and discussing possible solutions to address our shared environmental concerns.

You can join us via our website:

https://amistourduvalat.org

You can also contact us at:

amis@tourduvalat.org / amistourduvalat

ADOPT A FLAMINGO

If, like us, you are under the spell of this wonderful bird and want to contribute to the protection of this species, why not adopt a flamingo? This is an original way to learn about flamingos while supporting their conservation.

By adopting a flamingo, you will be informed where your flamingo is throughout the year and learn plenty of facts about the species.

66% of your gift is taxdeductible up to the limit of 20% of your taxable income.

https://tourduvalat.org/en/parrainage-flamant-2

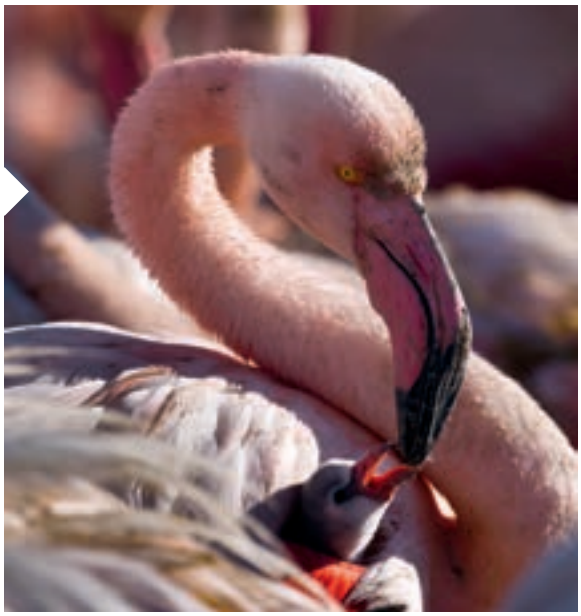
MAKE A DONATION OR BEQUEST

Because the Tour du Valat's values are dear to you, and you appreciate the quality and independence of its work, you can act on a long-term basis and help us to shape its future by making a donation or bequest to the Tour du Valat Foundation. Again, you will benefit from tax rebates. Don't hesitate to contact us for further information:

partenariat@tourduvalat.org

THE PETIT SAINT-JEAN ESTATE

Thanks to the generosity of Mr Bernard, the Tour du Valat has become the owner of an estate in the Gard Department whose total area of 101 hectares includes a remarkable pine wood (50 ha), marshes (24 ha), and agricultural land (26 ha). In keeping with the spirit of its donor, the Tour du Valat is using the site for an agroecological partnership project aimed at developing a productive, sustainable, resilient and autonomous agricultural system based on synergies with natural habitats.



© Hellio-Van Ingen

MAKE A DONATION

Every donation, even small, can make a difference!

Donations help us study Mediterranean wetlands and continue our efforts to better understand and protect them.

If you share the values of the Tour du Valat, and appreciate the quality and independence of its work, support us!

TAX-DEDUCTIBLE SUPPORT

The Tour du Valat Foundation is recognised as being of public interest and therefore authorised to receive gifts of money. 66% of your gift is tax-deductible up to the limit of 20% of your taxable income. A gift of 100 euros will thus only really cost you 34 euros after tax deduction.

1 WITH A **€25** DONATION

€8,50 AFTER FISCAL DEDUCTION IN FRANCE

© Hellio-Van Ingen

You can fund the ringing of a young flamingo. This is a great way to help us produce better knowledge to improve the conservation of this iconic species.

2 WITH A **€50** DONATION

€17 AFTER FISCAL DEDUCTION IN FRANCE

© Atelier LUMA

You contribute to the development of an agroecological project. We can plant 10 meters of hedges, including fruit trees and melliferous shrubs, that enhance biodiversity in agricultural areas.

3 WITH A **€100** DONATION

€34 AFTER FISCAL DEDUCTION IN FRANCE

© J.E.Roché

We can sample and analyse the blood of European pond terrapins (*Emys orbicularis*) to monitor pollutants (heavy metals, PCB). Thanks to these results we can monitor water quality and contamination in Camargue.

2 WITH A **€500** DONATION

€170 AFTER FISCAL DEDUCTION IN FRANCE

© I.Badone

You contribute to the purchase of an Argos tag that is used to equip a spatula or an ibis. This tag is a fabulous source of information as it allows the monitoring of their everyday moves and their migration. This allows us, for example, to identify key areas to protect.

With your support, research and conservation of wetlands improves, for our common good as well as for future generations. To make a donation and visit our online payment system:
https://tourduvalat.org/en/faire-un-don

Ludovic Michel,
ESTATE TECHNICIAN

“ For over 20 years now, I've been contributing to the maintenance of the Tour du Valat estate, from the paths to the farmland. ”

THEY SUPPORT US

Providing realistic responses to issues in the Mediterranean region, promoting and implementing integrated management processes, mobilising the most pertinent expertise, and funding projects. All our activities require the development of strategic relations with various organisations. Today, we conduct our activities in synergy with more than 300 partners throughout the Mediterranean Basin (research centres, NGOs, governmental or supra-governmental organisations, and foundations). Establishing these solid partnerships is indispensable for achieving our objectives, and we wish to thank all of our partners and financial backers.

The Tour du Valat has created links with numerous financial partners at various levels, including the following:

INTERNATIONAL PARTNERS

- European Union
- CEPF - Critical Ecosystem Partnership Fund
- French Development Agency (AFD)
- FFEM - The French Facility for Global Environment
- FAO - The Food and Agriculture Organisation of the United Nations

NATIONAL PARTNERS IN FRANCE

- Ecological Transition and Solidarity Ministry and the Provence-Alpes-Côte d'Azur DREAL (Regional Directorate for Environment, Planning and Housing)
- Ministry of Agriculture
- Rhone-Mediterranean and Corsica Water Agency
- ANRT - Association Nationale Recherche Technologie
- The French Biodiversity Office (OFB)
- CNRS, French National Research Centre

TERRITORIAL PARTNERS

- Provence-Alpes-Côte d'Azur Region
- Bouches-du-Rhône Departmental Council
- Camargue Regional Natural Park

Our private partners and sponsors

The MAVA Foundation was created by Luc Hoffmann in 1994, with the mission of establishing solid partnerships so as to preserve biodiversity for future generations. The Tour du Valat is one of the key projects backed by the MAVA Foundation, from which it receives major support.

AccorHotels has been a partner of the Mediterranean Lagoons Transfer Unit since 2004. It helps the MLTU celebrate World Wetlands Day and supports its communication campaign that promotes events in Mediterranean lagoon territories. Its employees also participate every year in a wetlands conservation project.

A manufacturer of pasta and semolina using organic durum wheat grown in the Camargue, ALPINA supports a research project on biodiversity in agricultural habitats, in particular the development of ecological monitoring processes that can be carried out by local farmers who care about the environment, and would like to enhance the biodiversity of their farms.

In early 2017, the Axiome endowment fund signed a 5-year sponsorship agreement to support the awareness-raising missions of the Mediterranean Lagoons Transfer Unit, particularly those linked to World Wetlands Day and European Heritage Days .

The CEPAC (bank) will continue to support our projects by funding an electric vehicle, and sponsoring the creation of agroforestry plots on the Petit Saint-Jean Estate, and an alternative mosquito control project that uses no insecticides.

EcoDDS is a non-profit company, whose mission is to foster recycling, and to collect and deal with various chemical wastes for individuals. It has made a three-year commitment to the conservation of the European Roller, and will provide support for Timothée Schwartz's dissertation. His doctoral thesis aims in particular to improve the deployment of artificial nesting boxes, which is the main conservation measure used to protect this species.

The Fondation de France supports two multi-disciplinary research projects at the Tour du Valat. One is to develop a participative geographical information system for the Greater Flamingo that encourages a social and human approach to science. The second project, which focuses on agricultural production systems, seeks to develop a showcase site for agroecology on the Petit Saint-Jean Estate in the western Camargue.

The Heritage Foundation supports an agroforestry and agroecology project on the Petit Saint-Jean Estate. This project aims to develop a showcase site for permaculture, with the planting of berry hedges and the creation of ponds. Its overall goal is to create a model for tomorrow's farms.

Grounded in the many common points linking the François Sommer Foundation and the Tour du Valat Foundation, a partnership has been established to develop and promote sustainable hunting practices, and engage in scientific activities that focus on wetland species.

The Gecina Foundation provides support for the Résifaune Health Ecology project, which aims to improve our understanding of the role played by wildlife in the circulation of antibiotic-resistant bacteria by studying those carried by rodents and gulls in different habitats in the Camargue.

The "Helping hand" programme sponsored by the Nature et Découvertes Foundation provided funding for a project to fit Eurasian Spoonbills with GPS tags. This project was carried out with the school in Le Sambuc (commune of Arles), and will follow their migrations to sub-Saharan Africa.

Since the Mediterranean Wetlands Observatory was set up, the Prince Albert II of Monaco Foundation has helped the Tour du Valat to assess the status and trends of wetlands in the Mediterranean Basin, in particular by developing indicators concerning their water resources and biodiversity.

In the framework of an international partnership, WWF is working with Coca-Cola in its "Replenish" programme. The aim is to give back to nature and communities the same amount of water as that used for the worldwide production of its drinks. In France, this commitment has resulted in a sponsorship agreement between Coca-Cola and WWF-France for a project aiming to improve the hydrological and biological exchanges in the lagoons and marshes on the former Camargue saltworks site.

In the framework of our development of a showcase site for permaculture on the Petit Saint-Jean Estate, which focuses on agroforestry and agroecology projects, the François Lemarchand Foundation is providing support for overhauling the irrigation network and developing niche crops.

We are partners in a hydraulic and ecological restoration project on an agricultural wasteland belonging to the GPMM, intended to favour hunting and grazing activities while preserving Mediterranean biodiversity. This project is co-financed by the ERDF and the Water Agency.

The Klorane Botanical Foundation and the Tour du Valat Foundation are both the work of visionaries committed to a harmonious relationship between Humanity and Nature: Pierre Fabre and Luc Hoffmann who knew and liked each other. The two foundations have a joint project to cultivate European Searocket (a medicinal plant) in the framework of the agroecology project on the Petit Saint-Jean Estate.

In the aim of preserving a very rare plant species, *Lythrum thesioides*, which has been identified at only two sites in the Gard, a partnership was created with OC'VIA (construction company) and the SNCF (train company) to fund a doctoral thesis on the ecology of this species. This project falls within the framework of the measures accompanying the construction of a high-speed train line.

The public works group NGE, which has already worked with the Tour du Valat Foundation on a previous project for controlling invasive alien species, is financing research on how to prevent the encroachment or re-encroachment of these species after habitat disturbance.

In 2017, VINCI Autoroutes (ASF south of France motorway network) signed a three-year partnership agreement with the Tour du Valat, which is intended to support its Mediterranean Lagoons Transfer Unit. This partnership reflects a common desire to promote Mediterranean lagoon habitats for the employees and users of this motorway network, through the ASF radio station and exhibitions at motorway rest areas.

Continuing our partnership initiated twelve years ago, this year the Total Foundation provided support for our Greater Flamingo research programme. It also supported our monitoring of the Slender-Billed Gull, a modelling project on the site of the former saltworks in the Camargue, the monitoring of biodiversity in marshes, as well as the Mediterranean Wetlands Observatory.

The foundation supports useful initiatives in the field of collective solidarity, knowledge sharing, and promotes terroirs and built - or natural heritage. It chose to support the creation of a web platform dedicated to our Tour du Valat flamingo sponsorship program which enables us to raise public awareness and contributes to the preservation of biodiversity in Mediterranean wetlands.

Hosted organisations

The Tour du Valat is hosting five partner organisations in its premises.

Friends of Tour du Valat Association

Friends of
Tour du Valat

The association has been created for the 60th Anniversary of the Foundation and links many an employee, intern, partner be it private or public, friend, who share the values and the philosophy of Tour du Valat. Its goal is to unite, advance, promote and support the action of the foundation through this vast network of people linked professionally as well as personally.

Find out more: **https://amistourduvalat.org**

MedWet Secretariat

MedWet

The MedWet initiative is composed of 26 partner countries in the Mediterranean basin and Palestine. Its mission is to promote the implementation of the Ramsar Convention's objectives and initiatives in the Mediterranean region. Since 1992, MedWet has been encouraging partnerships in order to ensure and support a rational use and an efective conservation of wetlands. In 2014, at the invitation of the French Government and with the support of the Rhône Mediterranean Corsica water agency and Fondation MAVA, the MedWet secretariat has been relocated at Tour du Valat, and works closely with the Mediterranean Wetlands Observatory.

Find out more: **www.medwet.org**

The French Biodiversity Office

OFB
OFFICE FRANÇAIS
DE LA BIODIVERSITÉ

The French Biodiversity Office is a public institution with 2,800 officers, which aims to protect and restore biodiversity in Metropolitan and Overseas France. The FBO offices at the Tour du Valat are home to two units of the head of the Research and Expertise Division. One is dedicated to small resident wildlife, and the other to the migratory avifauna. Their mission is to provide knowledge, research, and expertise on species, habitats, and their uses.

Find out more: **ofb.gouv.fr**

Association Caribaea Initiative

CARIBAEA
INITIATIVE

The association "Caribaea Initiative" aims at contributing to the development of scientific research on biodiversity and wildlife management at the scale of the Antillean arc. Created in October 2014, the association acts to strengthen the scientific expertise capacity on animal biodiversity in the Caribbean and to support the training of future local experts, through master and PhD grants.

Find out more: **www.caribaea.org**

Association TAKH

TAKH

Through the safeguard and study of the Przewalski horse as a flagship species, Association Takh leads a pilot conservation project which allies steppe and wetland restoration, as well as endangered species protection, to the promotion of sustainable development, on Khomyn Tal in Mongolia and Causse Méjean in Lozère (France).

Find out more: **www.takh.org/en/**

Visiting us...

The Tour du Valat is open to the general public on several occasions each year:

- On World Wetlands Day, usually the first Sunday in February, Tour du Valat has an open house, with conferences, video presentations and guided tours of the Estate.
- Together with the Bureau des Guides Naturalistes (BGN), paying guided visits are organized from November till April, every second Saturday. Registration is compulsory at BGN Bureau:
  +33 695 907 048
- If you wish to receive information about the programmes and other events organized at the Tour du Valat for the general public, please contact us at:
  secretariat@tourduvalat.org
- Follow us on:
  @TourduValat
  Tour du Valat
  www.tourduvalat.org

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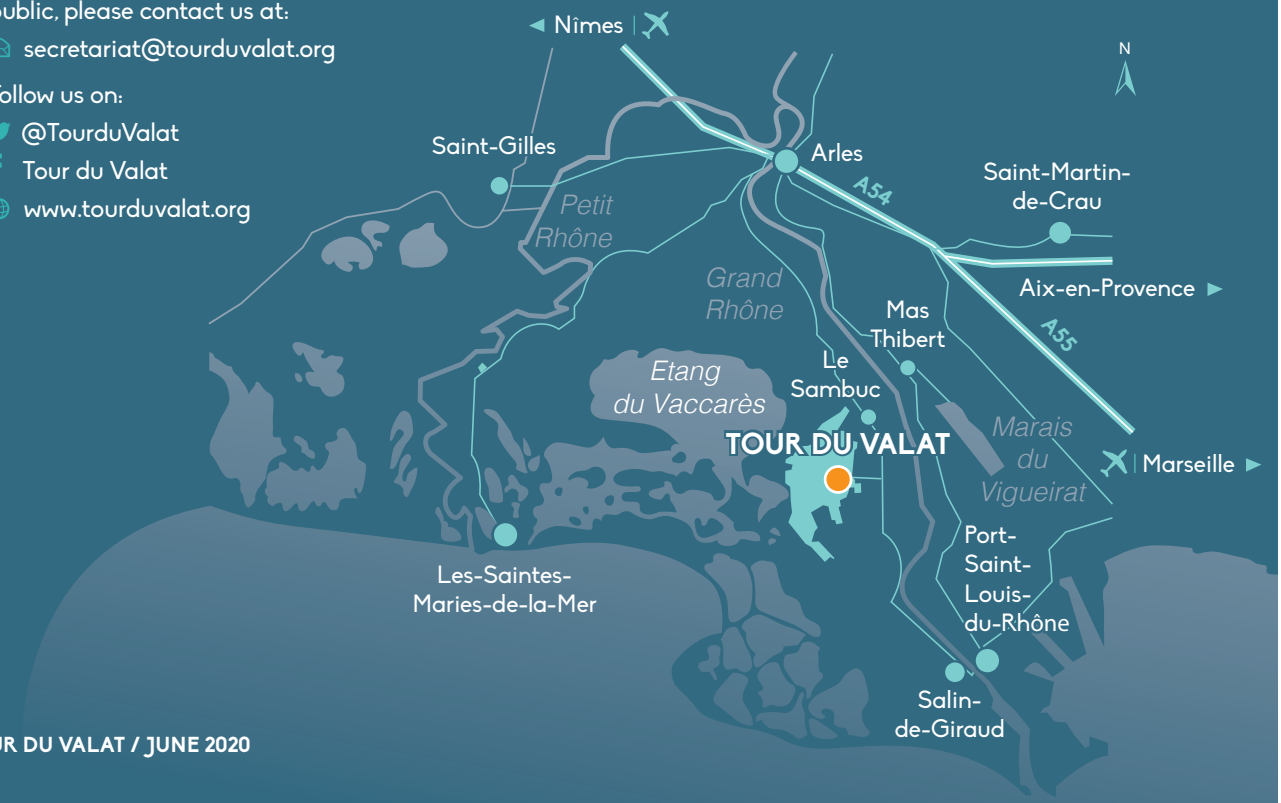

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