

## List of actions planned in the 3<sup>rd</sup> National Action Plan (PNA) for the European Mink

Version of the 11/09/19

WORKING AXIS	ACTIONS	SUB-ACTIONS
<b>1. Improving E. mink knowledge</b>	<b>1.1. Monitoring the evolution of E. mink range</b>	<p><b>1.1.1. Update the E. mink distribution map</b> This knowledge is the basis on which many actions of the 3<sup>rd</sup> PNA will be based. It must be found on scientifically validated databases. To be able to produce an update E. mink distribution map, it's necessary to make adjustments to the actual protocol with:</p> <ul style="list-style-type: none"> <li>- i) repetition / adaptation of the current protocol (started during the intermediary PNA) on certain priority sectors,</li> <li>- ii) coupling with different methods being tested (photo traps ...),</li> <li>- iii) prospecting campaigns on the sectors of old presence.</li> </ul> <p>Coordination with the Spanish prospecting programs will be sought.</p>
		<p><b>1.1.2. Test and compare alternative methods to prospecting campaigns (with non-killing trap)</b> Analyse and compare the results of prospecting campaigns (detection rates, environmental variables, periods), with those obtained by other alternative and / or innovative methods (hair traps, fingerprint tunnels, dogs detection, baited photo traps), DNAe ...) to continue to improve various techniques and methods, which can then be adapted to protocols in order to continue to capitalize distribution data of the species throughout the duration of the 3<sup>rd</sup> PNA.</p>
	<b>1.2. Characterizing the E. mink populations</b>	<p><b>1.2.1. Define individual monitoring protocols and set up scientific cooperation</b> In order to better understand the population's status, it is necessary to update the knowledge concerning population: number of individuals, sex ratio, age structure, fertility, reproduction periods, young survival analysis, range of dispersal ability, size of home ranges, diet, habitats, hybridization rate with European Polecat ... To answer all these questions, it will be necessary to pool national and international efforts, especially on genetic.</p>
	<b>1.3. Study E. mink health aspects</b>	<p><b>1.3.1. Develop and implement a health monitoring program for the E. mink</b> In order to better understand mortality factors in wild populations, it is important to monitor and follow pathologies or emerging diseases, but also within different vector species like A. mink, European polecat or other species. To do this, it is necessary to define collection protocols on living or dead animals and data management (storage, keeping a register in connection with action 1.4.1) of biological samples (blood, faeces, corpses, organs ...) and to define the fields of analysis to carry out (toxicology, bacteriology, virology...). To carry out these studies, it will be necessary to build close links with laboratories authorized to carry out analyzes, biologists, scientific partners, both at the national level (SAGIR...) and internationally in order to mobilize the appropriate skills.</p>
		<p><b>1.3.2. Develop and implement a management protocol for individuals in distress</b> In cases of a discovery of an individual whose state of health is worrying, it is necessary to start a reflection on the future of this individual in distress based on targeted veterinary examinations (rehabilitation and relaxation or sublethal examinations contributing to the improvement of knowledge). In addition, the discovery of such an individual near a border population (Spain) will be the subject of a rapid transfer of information.</p>
	<b>1.4. Collect and value data and their producers</b>	<p><b>1.4.1. Manage and populate databases of the PNA</b> The various actions of the PNA contributing to the improvement of knowledge (Axis1) are sources of data production that should be capitalized and ordered. It can be opportunistic data or data from species protocols (European Mink surveys, American mink control operations), but also sample data, test results, photos, videos ... etc. All these data must be clearly identified and combine to the right partners according to the charter that will be defined (see Action 1.4.2).</p>
		<p><b>1.4.2. Collect data produced by partners and ensure common valuation under the PNA</b> As part of their own programs, different structures can produce minks' data. It is necessary to identify these producers and holders of data (road service, citizen science platforms "Faune Aquitaine"... ) and to establish with them the terms of data transfer to the PNA in order to ensure a collective valuation. To do this, it is necessary to establish a charter for the use and exploitation of partners' data in order to guarantee transparency and the recognition of all partners. In order to better involve the public in the knowledge of the E. mink, the possibility of creating a collaborative data entry platform could be studied.</p>
<p><b>1.4.3. Produce and maintain a bibliographic synthesis of knowledge on the E. mink</b> In order to be efficient, it is important to take advantage of the results of the studies carried out, to avoid reviving subjects already treated and analyzed. In addition, a watch on all national and international work related to the various actions of the PNA is necessary.</p>		
<b>2. E. mink Ex situ conservation</b>	<b>2.1. Having a sustainable and integrated E. mink breeding center within the EEP</b>	<p><b>2.1.1. Update and complete the « breeding guidelines »</b> Organize an exchange on the feedback of different practices of E. mink breeding on European scale. Success rates or factors of failure will be reviewed : origin of individuals, facilities description, materials used for individual follow-ups (weighing, smear, ultrasound...), health monitoring, declared diseases, individuals management (weight monitoring, diet type, etc.), reproduction type (natural, semi-natural and / or artificial), practices during breeding season (movement of individuals, management of pens, day vs. night, mating time, etc.), rate of unfit males, results of crosses in East and West strains (reproduction F1, genetic impacts...), difficulties encountered...</p>

		<p><b>2.1.2. Writing (with the EEP) a management guide adapted to French breeding centers</b> Based on feedback provided by sub-action 2.1.1, the aim is to compile most convincing parameters to improve efficiency of French breeding centers. This guide will include a precise description of monitoring protocols according with reproduction cycle (before, during, rearing of young, after). It will also define how French breeding centers are integrated into the EEP (needs of complementary individuals - number, source, sex ..., management of unfit individuals, definition of pairings, becoming of individuals born in France ...).</p> <p><b>2.1.3. Conduct additional contributing studies for EEP</b> France can also provide elements to EEP to improve overall efficiency of E. mink ex-situ management. The aim is to study stereotypical behaviour seen in France and to continue research on artificial insemination with a sperm bank. According to first results, question of embryo transfer (European polecat surrogate mother) could also be explored. Another aspect of the study could be a reflection on breeding in semi-captivity. All of these reflections could notably find their place in a workshop proposed on sidelines of the European symposium on mustelids, which takes place every 2/3 years.</p>
	<p><b>2.2. Define the strategy of reintroduction into natural environment and implement it</b></p>	<p><b>2.2.1. Define the reintroduction strategy</b> Base on similar experiences feedback in Europe (where, when, how, which individuals, committed follow-ups, rates and failure factors ...), refine various possible scenarios (close to a population existing or not, potential sites, when, how, how many individuals, ages, sexes, source, sites and individuals monitoring methods - radio tracking or CMR direct or indirect ...), and then chose one of them according to our own constraints</p> <p><b>2.2.2. Prepare the reintroduction zone(s)</b> Ensure a good local perception of the project, manage quality habitats (shelter, food, reproduction, travel), preventing environmental threats, carry out necessary administrative procedures ...</p> <p><b>2.2.3. Implement reintroductions, follow reintroduced individuals and site of reintroduction</b> Organize a partnership monitoring of sites (quality of habitats, competing species ...) and released individuals. Make a review of factors of success or failure.</p>
<p><b>3. Limiting impact of A. mink on E. mink</b></p>	<p><b>3.1. Fight against A. mink introducing sources in kind.</b></p>	<p><b>3.1.1. Monitoring conditions of A. mink farms</b> In the PNA scope, there is only one active A. mink farm. It should be regularly ensured that installations guarantee optimal sealing conditions (no A. mink should be able to escape). Face of vandalism risks that regularly affect this type of farm, it seems appropriate to avoid any A. mink new farm creation in the PNA scope. It is therefore necessary that instructor's services guaranteeing laws respect concerning invasive alien species, holding captive wildlife or classified installations, coordinate themselves to formulate their decisions. An emergency procedure in case of escapement must be updated and implemented for the farm present in the PNA scope but also outside. A continuous watch with rafts could be implemented.</p> <p><b>3.1.2. Monitoring A mink conditions of detention in other owners</b> There are other A. mink holders, permanent or not, which are zoos, individuals with an ability certificate or wildlife care centers. For the latest, it happens regularly that individuals found in kind are brought to them. There are also illegal wildlife contraband and some cases of A. mink have already been encountered. In the PNA scope, in order to protect the remaining population of E. mink, it is imperative to limit these cases with hermetic conditions of detention about natural areas. A managing procedure for individuals arriving at wildlife preservation centers must be discussed and implemented.</p> <p><b>3.1.3 Bring a necessary expertise to the evolution of A. mink legal status in France</b> Recent, and still evolving, laws on detention of invasive aliens species need to be widely known, explained and monitored. This regulation responds to a regularly assessed European law. Changes are sometimes based on feedback from managers of areas or species, in connection with management difficulties of invasive aliens species. Therefore, it seems important that PNA results, in connection with other European programs on E. mink, can bring matter to laws evolutions, in particular concerning the A. mink status in France.</p>
	<p><b>3.2. Fighting against A. mink in-kind in PNA scope</b></p>	<p><b>3.2.1. Establish and implement a fight strategy against A. mink</b> The fight against invasive alien species, especially A. mink, is very time-consuming and results are not always up to expectations. It is therefore necessary to make choices and to set objectives to be achieved as well as means of struggle adapted to these. An A. mink monitoring in the E. mink area of presence has to be continued (after LIFE) as well as a priority fight on the colonization fronts and at the borders of the PNA scope. Coherence and coordination with Spanish teams is needed to improve efficiency in cross-border areas.</p> <p><b>3.2.2. Improving effectiveness of fight against A. mink</b> In order to be always at forefront of effective control, it is advisable to implement an international watch on techniques and strategies for A. mink control. Return of catch or sighting data about A. Mink must be rapid to adapt accordingly the control strategy. For example, quick reactivity should be done in the event of an A. mink discovery in Charente / Charente-Maritime sector. Departments located on outskirts of E. mink known core areas are, like the others, subject to the obligation to use mink hatch in the PNA scope. This hatch is intended to ensure E. mink exit and especially E. mink suckling females during breeding period. This obligation seems to strongly curb trappers in the implementation of action to fight A. mink. This obligation must be reconsidered after verifying E. mink absence from these sectors. Moreover, during this period of 4 months of use of E. mink hatch, it is possible that a presence data of A. mink in a priority area of fight appears. In this case, monitoring via rafts will be implemented as soon as possible to target where to start trapping after lifting the restriction period. Finally, concerning mink hatch, which can be square, adaptation must imperative be made "round" to reduce the risk of injury to other animals. Mink hatch regularly raises questions. Reminders of its usefulness should be provided regularly and included in the training components provided for in Action 5.2 Trapping implementation on a territory requires administrative authorization procedures from the owners and a delegation of "right of destruction". This procedure add inertia in launching struggle operations. It may be appropriate to conduct a legal analysis to simplify these procedures. Exchange with the network of trappers is capital to have a sufficient mobilization and for research sites favourable to fight actions.</p>

	<p><b>3.3. Gain better knowledge about A. mink and other non-native species to improve the fight</b></p>	<p><b>3.3.1. Study A. mink to improve the fight strategy</b> Studying A. mink population dynamics (fertility, sex ratio, age, dispersion ...) according to different methods (genetic samples, GPS, autopsies ...) in order to fight more efficiently. Moreover, it would be interesting to identify how A. mink affects E. mink and other species, for example by analysing its diet.</p> <p><b>3.3.2. Study potential impact of other foreign species on E. mink</b> Study in particular the possible impact of Raccoon and propose a strategy of struggle if necessary. Look for other sources of impacts on E. Mink (e.g. domestic animals).</p>
<p><b>4. Fight against others in-kind threats factors to E. mink</b></p>	<p><b>4.1. Fighting against disappearance of favourable habitats of E. mink</b></p>	<p><b>4.1.1. Ensure that E. mink is well taken in account in plans, programs and management documents</b> In order to assist a territorial management compatible with E. mink ecological requirements, it is necessary to continue the work of updating the guide of good management practices in collaboration with the LIFE program and to ensure wide dissemination to all managers of natural areas. This work is also an opportunity to take stock of existing measures or practices that would be unfavourable to E. mink. Indeed, depending on the protected species concerned and they management methods, there may be confrontations of issues that should be identified in order to propose best possible compromises (alternative measures). Taking into account E. mink in ecological continuity policies (TVB, SRADDET) is also to be encouraged as much as possible.</p> <p><b>4.1.2. Creating specific management measures for E. mink</b> Identify possible tools (MAEC, territorial contracts "aquatic environments", watercourse management contract, basin contracts, regulatory protected areas, compensatory measures, "Haven of peace" zones ...) according to their scope (regulatory, contractual ...) and encourage implementation of measures or land acquisitions for E. mink (banks, wetlands, forest islands ... etc.)</p> <p><b>4.1.3. Identify and monitor implementation of compensatory measures in favour of E. mink</b> Ensure that E. mink is taken into account in development projects. List current compensatory measures and ensure their effective implementation, effectiveness and monitoring (ex : national data base of "wildlife crossing" from CEREMA) Provide for referencing of future compensatory measures in link with the national web platform GeoMCE.</p>
<p><b>5. Communication and training about E. mink and actions of the PNA3</b></p>	<p><b>5.1. Develop and implement a communication strategy</b></p>	<p><b>5.1.1. Develop and implement a communication plan</b> Identify all target audiences (French and international) and define for each means of communication to use as well as the relevant tools. Moreover, identify tools that should benefit from a translation. Include in this communication plan, the valuation of tools already created (film, brochure, poster) or under development (habitat guide, Kakemono ...) within the framework of the PNA, LIFE Vison ... Set up a mailing list to quickly pass information to partners, funders ... various audiences.</p>
	<p><b>5.2. Organise training to make know the E. mink and its conservation challenges</b></p>	<p><b>5.2.1. Build training modules adaptable to different audiences</b> Have training tools, updated regularly to offer a training for a wide audience. A training module could be offered in various existing training institutes (CVRH, OFB, trapping formations, hunting licence, etc.). Provide a simplified and adapted version of the training module that could be used by someone other than PNA animators (transferable version). On the other hand, provide a fine and precise version for partners taking charge of PNA actions.</p> <p><b>5.2.2. Answer to training requests</b> According to a volume calibrated annually, respond as positively as possible to requests for training made to the PNA animators. If this is not possible, make the simplified training module transferable. Implement training for partners that are doing some actions of the PNA.</p>