POLLINIS

ONG INDÉPENDANTE ET SANS BUT LUCRATIF QUI AGIT EXCLUSIVEMENT GRÂCE AUX DONS DES CITOYENS POUR LA PROTECTION DES ABEILLES DOMESTIQUES ET SAUVAGES, ET UNE AGRICULTURE RESPECTUEUSE DE TOUS LES POLLINISATEURS.

APPEL DES SCIENTIFIQUES AU GOUVERNEMENT FRANÇAIS

POUR LA CRÉATION D'UN SANCTUAIRE VISANT À PROTÉGER L'ENSEMBLE DES POLLINISATEURS DE L'ÎLE DE GROIX

CE DOCUMENT EST LE RÉSUMÉ DE L'APPEL (CI-DESSOUS) QUI A ÉTÉ RÉDIGÉ EN ANGLAIS ET SIGNÉ PAR UNE VINGTAINE DE SCIENTIFIQUES DE RENOMMÉE MONDIALE, À L'INITIATIVE DE L'ASSOCIATION FRANÇAISE POLLINIS (LOI 1901) QUI AGIT POUR LA PROTECTION DES POLLINISATEURS.

Cet appel s'adresse au gouvernement français et demande la création d'un sanctuaire protégé par la loi pour les insectes pollinisateurs de l'Île de Groix. Nous demandons la protection des pollinisateurs sauvages et des abeilles mellifères locales, ainsi que la protection des pratiques associées à leur préservation afin d'empêcher l'introduction de tout pollinisateur – y compris l'introduction d'abeilles domestiques – non indigène.

CONTEXTE

Nous assistons à l'échelle mondiale à **un déclin considérable des insectes pollinisateurs**. En Europe, la masse des insectes ailés a diminué de 80 % en moins de trente ans (Hallmann 2017). Les abeilles à miel (espèce *Apis mellifera*) domestiques et sauvages, mais aussi les abeilles solitaires, toutes sauvages, font partie intégrante de ce groupe. **Elles jouent un rôle essentiel pour la biodiversité végétale et la production agricole**. Pourtant, ces abeilles demeurent méconnues : selon l'UICN, il n'existe **pas assez de données scientifiques** pour 56,7 % des abeilles solitaires d'Europe (1 101 espèces). Des études scientifiques ont montré que les causes du déclin des pollinisateurs sont les pesticides et les facteurs de stress environnementaux, notamment la dégradation des habitats, mais aussi pour les abeilles mellifères, la perte de diversité génétique, les ravageurs et les agents pathogènes. L'acarien *Varroa destructor* constitue une menace mondiale majeure. En France, il est classé dans les dangers sanitaires de 2e catégorie.

Dans ce contexte, l'Île de Groix présente une situation unique et doit bénéficier d'une protection spécifique pour trois raisons principales :

1. Un site précieux

À Groix, l'environnement naturel est préservé par plusieurs types de protection

(Réserves naturelles nationales, Natura 2000, Conservatoire du Littoral, Zone naturelle d'intérêt écologique, faunistique et floristique (ZNIEFF)). Il n'y a pas d'agriculture intensive. La flore est principalement endémique et plus de 70 % de la superficie de l'île est exempte de culture. **L'île serait une zone de conservation naturelle idéale pour les pollinisateurs.**

2. Une apiculture naturelle
L'Association pour la Sauvegarde de l'Abeille Noire (ASAN.GX) se consacre à la préservation de l'abeille noire indigène. Les apiculteurs interviennent très peu sur les ruchers : contrairement à la plupart des autres régions du monde, ils ne traitent pas contre le varroa et ne nourrissent pas les abeilles avec du sirop. **À Groix, les abeilles noires vivent et meurent sans intervention humaine, une situation rare.**

3. Des abeilles exceptionnelles
Les abeilles mellifères de Groix, qu'elles soient domestiques ou sauvages, appartiennent à la sous-espèce indigène d'Europe du Nord-Ouest, *Apis mellifera mellifera*, souvent appelée abeille noire. Ailleurs, l'introduction continuelle par l'Homme d'abeilles mellifères non indigènes menace le caractère unique de cette sous-espèce. Une étude menée par le CNRS a confirmé que **« la population de l'île de Groix faisait partie des populations les plus pures d'*Apis mellifera mellifera* »** (Garnery 2018). Selon une étude en cours de publication, les abeilles mellifères de Groix ont co-évolué avec *Varroa destructor*, l'acarien parasite qui décime les colonies ailleurs en Europe si elles ne sont pas traitées. **À Groix, cet acarien et la population d'abeilles mellifères ont atteint une relation hôte-parasite stable, un fait rare, très peu documenté à travers le monde.**

COMMENT PROTÉGER LES POLLINISATEURS DE L'ÎLE DE GROIX ?

1. Préserver l'environnement et les paysages propices aux pollinisateurs sauvages, y compris aux colonies d'abeilles mellifères sauvages.

2. Protéger l'île contre toute introduction d'abeilles mellifères non indigènes.

3. Sensibiliser et maintenir les pratiques durables des apiculteurs locaux.

La mise en place d'un sanctuaire français pilote pour les pollinisateurs sur l'île de Groix protégera les abeilles mellifères locales ainsi que les pollinisateurs sauvages **dans l'intérêt de la science**. Cette action pionnière a également pour objectif le maintien de la diversité génétique et les facultés d'adaptation des abeilles noires de Groix. Sans une protection juridique spécifique, **nous risquons de perdre ce qui pourrait être le meilleur exemple d'*Apis mellifera mellifera* résistante au varroa en Europe.**

APPEAL BY SCIENTISTS TO THE FRENCH GOVERNMENT TO PROTECT ALL WILD POLLINATOR BIODIVERSITY ON ÎLE DE GROIX, INCLUDING THE THREATENED *APIS MELLIFERA MELLIFERA* POPULATIONS

THIS APPEAL TO PROTECT THE GROIX ISLAND TERRITORY AS A UNIQUE AND VULNERABLE SITE FOR POLLINATORS IS AN INITIATIVE OF THE FRENCH NON-PROFIT POLLINIS, WHICH ACTS FOR THE PROTECTION OF POLLINATORS. THIS DOCUMENT WAS DEVELOPED AND SIGNED BY KEY SCIENTISTS IN THE FIELDS OF ENTOMOLOGY, BEE HEALTH, POLLINATOR ECOLOGY AND KEY REPRESENTATIVES IN POLLINATOR, ETHNOBIOLOGY AND CONSERVATION, BEEKEEPING AND ENVIRONMENTAL MANAGEMENT.

The main purpose of this paper is to appeal to the Government of France to protect wild pollinators, the native honey bees and associated preservation practices on Île de Groix, by establishing a unique sanctuary for pollinators with legal protection in order to prevent the introduction of any non-indigenous pollinators, including managed and wild honey bees that would threaten the purity of the native honey bees and all wild pollinators on Île de Groix.

BACKGROUND

STATE OF PLAY

Decline of wild pollinators

Globally, there is a significant decline of insect pollinators (IPBES 2016). Wild bees are an integral part of the pollinator guild in Europe and play an important role in plant biodiversity conservation (including wild plants and natural habitats (Hung, Kingston et al. 2017) and crop production (Potts, Imperatriz-Fonseca et al. 2016, Garibaldi, Requier et al. 2017). Honey bees rank as the most frequent single species of pollinator for crops worldwide (Garibaldi, Steffan-Dewenter et al. 2013).

Wild bee populations

IUCN reported that scientific information to evaluate the risk of extinction is missing for 56.7% of the 1,101 species in Europe: they were thus classified as data deficient (Nieto, Roberts et al. 2014). IUCN further argued that when more data becomes available, many of these might prove to be threatened as well (Nieto, Roberts et al. 2014). Regarding honey bees, the awareness of the importance of protecting these populations is growing among beekeepers and institutions (Fontana, Costa et al. 2018). Wild Apis colonies are present and potentially abundant in Europe (Requier et al. 2020) but their continued survival depends on protecting natural areas (Requier et al. 2019).

Current threats

Studies have shown that bee declines are caused by pests and pathogens, pesticides, environmental stressors, including habitat degradation and loss of genetic diversity and vitality (Potts, Biesmeijer et al. 2010). These multiple drivers and stressors can act individually, simultaneously and eventually synergistically on pollinator communities (Tylianakis, Didham et al. 2008, Daszak 2007).

Varroa destructor

A major global threat to honey bees is the exotic ectoparasitic mite, Varroa destructor, that infests European honey bees since it was introduced from Asia some 50 years ago. There is limited data on populations surviving *Varroa* (managed and wild) (see Locke review 2016). We know from these populations, however, that there is reported a co-evolution between the bees and Varroa. There are many studies looking at the mechanisms that enable bees to survive (Le Conte 2007, Kruitwagen et al 2017; Panziera et al., 2017, Guichard et al. 2020). There is clear evidence that wild populations of *A. mellifera can survive V. destructor* infestations by means of natural selection (Le Conte 2007, Seeley 2007, Locke 2016, Locke et al. 2010). Colony level adapted tolerance to mite infestation could be an additional explanation for the survival of the Groix island honey bee population.

CONTEXT

GROIX ISLAND

Status of wild pollinators and monitoring of managed and wild *Apis mellifera*

On Groix, the natural landscape is preserved by several types of protection *(Réserves naturelles nationales, Natura 2000, Conservatoire du Littoral, Zone naturelle d'intérêt écologique, faunistique et floristique (ZNIEFF)).* There is no intensive agriculture. The flora is mainly endemic and about 25% of the area of the island (according to the French land register) is free from cultivation. The island is a natural pollinator conservation area and has been the subject of frequent inventories of fauna and flora. Lastly, testing of beeswax from Groix has demonstrated a very low pesticide exposure level to bees on the island (Pettis unpublished 2020).

Management of the population of the native dark honey bee colonies on Groix

On Groix, the *Association pour la Sauvegarde de l'Abeille Noire* (ASAN.GX) led by Christian Bargain (the lead beekeeper) is dedicated to the preservation of the native dark honey bee as are other similar organisations across France (FEDCAN) and Europe (International *Societas Internationalis pro Conservatione Apis melliferae melliferae* (SICAMM)).

Specifically, beekeepers use minimal management: no applied treatment for mites; and no feeding the bees (i.e. sugar). This is unique in comparison to other parts of the world where beekeepers are treating against *Varroa* and feeding with syrup to strengthen their colonies: on Groix, the dark honey bees live and die on what they can collect on their own without human intervention.

CONTEXT

ASAN.GX has been monitoring the survival of wild colonies that live in the rock walls and structures around the island for the last 10+ years and have shown that the wild honey bees survive well with no management. To verify and support the work of ASAN.GX, preliminary results of a study beginning in 2018 have reported that the honey bees on Groix seem to have an ability to live with *Varroa* mites infestations that normally ravage other honey bee populations in France and the world (Pettis unpublished 2021). Not only do the native honey bees seem to be adapting to Varroa but there is something happening to the Varroa as well (as documented by Moro et al. 2021a, 2021b in other places). In addition to the reported Varroa tolerant honey bees on the island, a study conducted by the CNRS established that «the population of the island of Groix was among the purest populations of *Apis mellifera mellifera* (Garnery 2018) in France.

ARGUMENTS

WHY SHOULD WE PROTECT ISLE DE GROIX?

1. To preserve the diversity of wild pollinators and landscape protection

Based on previous naturalist inventories on Groix, the diversity of pollinators is related to the ability to protect the landscapes. All these efforts will be continued as expressed in the Rapport d'activité 2019 de la réserve naturelle de l'Ile de Groix (Robert & Trifault L. 2019).

2. Beekeeping practices to preserve the native populations of *Apis mellifera mellifera*

Sustainable beekeeping is being practiced on Groix by ASAN.GX. This type of beekeeping needs to be promoted, including coordinating beekeepers, monitoring native honey bee colonies together with the knowledge and skills of sustainable practices. Sustainable beekeeping includes leaving the bees to their own survival (i.e. not feeding sugar, not treating for *Varroa*), and this works positively to both preserve of native dark honey bees and allow them to co-evolve with *Varroa*.

The need to protect the bees of Groix island are summarised by one of the leading authorities on bee genetics: "..the island of Groix is a particularly suitable place for conservation, due to its isolation from other populations and the traditional beekeeping practiced there. It is therefore essential to do everything possible to preserve this fragile island ecosystem, to maintain the natural diversity observed and to support the conservation action that is practiced there" (pg. 34) (Garnery 2018).

SOLUTIONS

HOW TO PROTECT THE POLLINATORS ON GROIX

1. Preserve the landscape for wild pollinators, including wild honey bee colonies;

2. Protect the island from introduction of non-native honey bees; and

3. Raise awareness and maintain the sustainable preservation practices of the local beekeepers.

Therefore, applying these **urgent recommendations** will help sustain the current context of **protecting native honey bees and wild pollinators** on Île de Groix **in the interest of science** but also to **maintain the genetic diversity and local adaptation of the dark bees** on Groix. Without this protection, we could lose what appears to be the best example of *Apis mellifera mellifera* resistant to Varroa mite in Europe.

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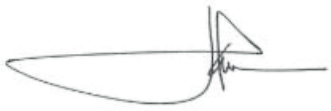

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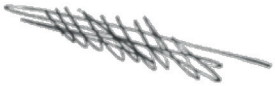

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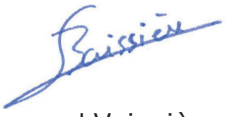

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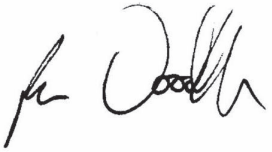

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