



**ISWA 2024**  
**WASTE TO WEALTH:**  
SOLUTIONS FOR A SUSTAINABLE FUTURE  
15 - 18 Sept | CTICC, CAPE TOWN



# Biodiversity protection and promotion through waste management

**Bradley Thorpe (Pr. Sci. Nat.)**  
GM Technical Services, Interwaste (Pty) Ltd.  
South Africa





## **Does the nature of waste management activities logically preclude an imperative to actively protect, restore and promote biodiversity?**

Perception: 'Dirty', 'Smelly', 'Noxious', 'Brown-fields' Industry!



# Presentation outline

- Background and Introduction
- How can waste management impact biodiversity?
- Mitigating the potential impacts of waste management on biodiversity
- Planning for the implementation of a 'Biodiversity' Strategy
- Local case studies / personal experiences
- An International perspective(s)
- Concluding remarks and Take-Home Message

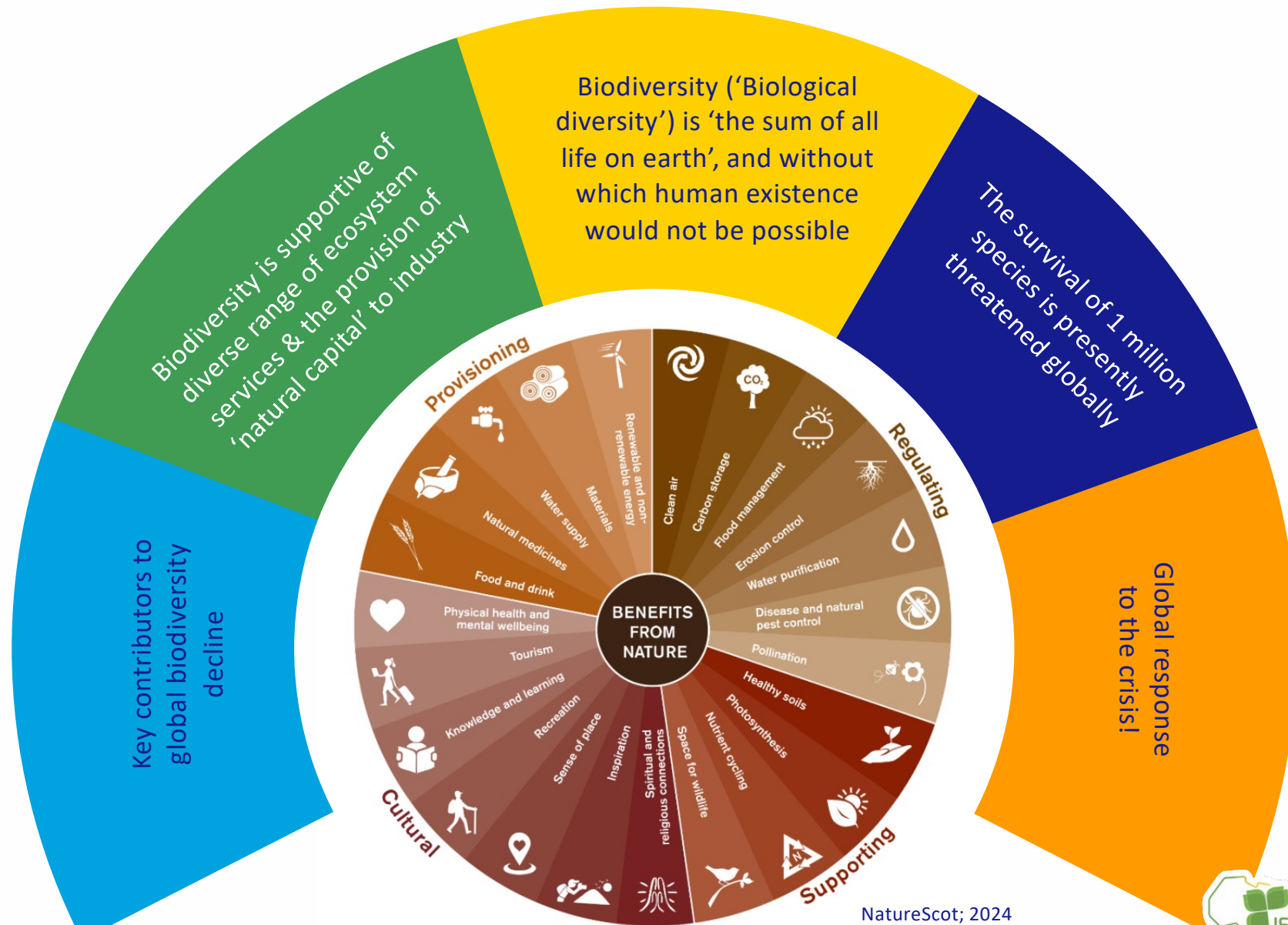




## Background and Introduction

- Setting the scene!

# Background and Introduction



NatureScot; 2024





## How can waste management impact biodiversity?

- Both positively and potentially negatively!

# How can waste management potentially impact biodiversity?

Distinction in respect of inappropriate / illegal / indiscriminate waste dumping from regulated and appropriately implemented waste management practices and systems

## Negative Impacts

### Direct impacts

- Clearance of vegetation and natural habitat to accommodate associated structure and infrastructure
- Fragmentation of natural environments

### Indirect impacts

- Release of pollutants into the environment (gaseous, liquid or solids)
  - Sterilisation of land
  - Plant and animal mortalities
- Contribution to global warming (e.g. open burning of waste) with resultant impacts on biodiversity
- Utilisation of natural resources

## Positive Impacts

### Direct impacts

- Potential to restore and promote natural habitats

### Indirect impacts


- Conservation of natural resources through recycling/recovery/re-use activities (circular economy & implementation of the hierarchy for waste management)
- Limiting the extent of pollutants in natural environments
- Reduced GHG emissions
- Water conservation
- Awareness raising!



## **Mitigating the potential impacts of waste management on biodiversity**

- What can be done?





# Mitigating the negative impacts of waste management on biodiversity

- Well developed, robust and properly enforced legal regime for waste management
  - License applications / registrations for waste facility establishment and operation
  - Legislation aligned with International Commitments (COP 15 on Biological Diversity)
  - Minimum quality standards for soil, air and water quality & release / discharge thereto
  - Keep waste out of our natural environments
  - Circular economy and closing resource loops
- A clear Corporate commitment to the preservation, restoration and/ or active promotion of biodiversity
  - Integrate biodiversity conservation and promotion into your Business
  - Going beyond min. legal requirements
  - Acknowledging that Business / Industry is dependent on ecosystem services and ‘natural capital’



## **Planning and implementing a strategy in favour of biodiversity**

- What needs to be considered?

# Planning for the implementation of a biodiversity strategy

Have a clear understanding of your intended aims & objectives

Budget and resourcing

*Status quo* / baseline assessments

Partnerships

Communication strategy

Implementation plan

Be wary of green washing

Commit!

Continuous Monitoring





## **A local case study and perspective**

- A brown-fields waste management facility in industrial Germiston, Gauteng, S.A.



2010



2012



2013



2017



2019



2024



# Restoration / promotion of biodiversity – a local case study



Licensed general- and hazardous waste recovery and recycling facility



Voluntary group commitment linked to green financing (A4N)



Brown-fields site in a highly industrialised area



Commitments, and related progress, are independently audited every year



Limited opportunity for ecological corridor creation / restoration



Partners include, SANBI, Landscaping professional, Ecological specialists, Bat ecology specialists, Staff, Site Biodiversity 'Champions'



Two areas of primary commitment over a five (5) year lifecycle (2023 to 2027)

# 3 areas of commitment from 2023 to 2027

For the next 5-year "act4nature" cycle: 2023 - 2027



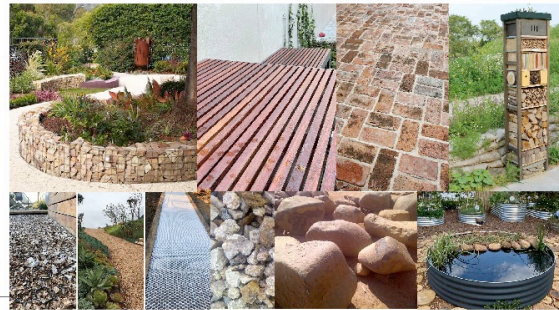
# Landscape Development Concept Plan

Scale: 1:200 on A1

Design Concepts



Hardscaping Concepts



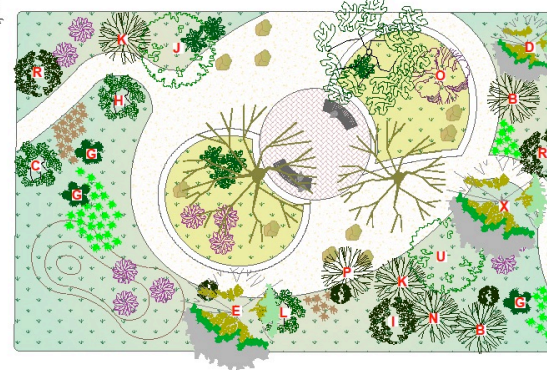
Nectar planting



Trees of the year 2022 - 2030



ROADWAY



ROADWAY

Diversity in grassland Biomes



ROADWAY

## Tree List

- A - Aloidendron (Aloe) barberae
- B - Apodytes dimidiata subsp. dimidiata
- C - Bolusanthus speciosus
- D - Buddleja Saligna
- E - Celtis africana
- F - Combretum erythrophylum
- G - Cussonia paniculata subsp. sinuata
- H - Dais Cotinifolia
- I - Dodonea Viscosa var. angustifolia
- J - Dombeya rotundifolia
- K - Dovyalis caffra
- L - Erythrina lysistemon
- M - Heteropyxis natalensis Nillex mitis
- O - Kiggelia africana
- P - Kiggelaria africana
- Q - Mimuspops zeyheri
- R - Olea europaea subsp. africana
- S - Pappea capensis
- T - Rhamnus prinoides
- U - Schotia brachypetala
- V - Searsia lancea
- W - Senegalia (Acacia) galpinii
- X - Vachellia (Acacia) sieberiana var. woodii
- Y - Vachellia (Acacia) xanthophloea
- Z - Ziziphus mucronata

## General Notes

1. A fully automated irrigation system to be installed in all landscaped areas. Irrigation design and installation will be in accordance to SABI minimum quality standards. Irrigation to run on weather controlled system.
2. All bedding areas to receive minimum of 20mm mulch layer covering exposed soil after planting. Mulch with composted wood chippings.
3. Installation/planting will be accordance to SALI code of ethics and minimum quality standards.
4. All construction elements to be in completed in accordance with the National Building Regulations Act 1977, and Local Authorities by law.
5. All soil additives to be 100% certified organic.

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All dimensions are in mm, unless otherwise stated.

Level to be checked on site and on the drawing, Discrepancies are to be communicated to the design before installation is to commence.

Do not scale off the drawing.

Identification and removal of alien invasive species are to be conducted in accordance with the Conservation of Agricultural Resources Act (No 43 of 1983)

**RealGreen**  
Landscaping and Sportsturf

**INTERWASTE**  
A Sèche environnement company



SAGIC SALI

Interwaste (Pty) Ltd  
1 Brammer St,  
Industries East, Germiston

Landscape Contractor: Real Green  
Landscape design: Sarah Vermaak

Drawn: 16 May 2022  
Revision: Rev 1.1











**INTERWASTE**

## Bat Bank Installation



The bat bank has been installed as part of the Interwaste's Group's biodiversity commitments. This bat bank has been made from 100% recycled wood and is designed to attract crevice dwelling bats such as the Free-tailed, Cape Serotine and Yellow House Bat.

Occupancy will most likely take place in spring or early summer after the bats have returned from winter migration or hibernation.

**Bats do not attack humans.** Like any animal that feels threatened, bats may bite in self-defence when picked up. However, bats are naturally non-aggressive animals and unprovoked attacks by bats on humans have never been recorded.

**Bats do not carry rabies.** In Southern Africa, "typical" rabies is carried by dogs and wild animals, but has never been detected in bats. A recent study of 780 bats in South Africa found that the sample group, not one tested positive for rabies.

**Bats and their droppings do not carry parasites that cause disease.** Bats harbour some fascinating, but completely harmless parasites. Bats do however carry "insects" similar to fleas, which rarely bite any other animal except other bats.

If you see any activity around the bat bank, or if you would like further information on how to set up a bat bank, please contact the biodiversity team on [biodiversity@interwaste.co.za](mailto:biodiversity@interwaste.co.za).

**Some Common Bat Species in South Africa**



**INTERWASTE**  
A proud stakeholder company

Proudly installed by



# Bat Banks / Hotels

- Habitat destruction is a threat
- Guano as a fertilizer for the Hotspot
  - (Rich source of N/P/K)
- Opportunity for education
- Ecosystem Services offered
  - Pest control
- Catalyst for discussion/interest
  - Very unique and misunderstood species

# Establish a 'baseline'

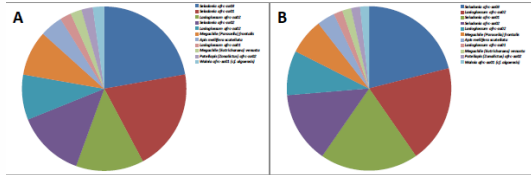


Figure 3-12. Relative incidence (A) and relative abundance (B) of bee species in the non-landscaped area within the Biodiversity Enhancement Zone at Intervac's Germiston premises.

Species	Landscaped	Non-landscaped	Total
<i>Allodapula variegata</i>	3		3
<i>Amegilla calens</i>	1		1
<i>Apis mellifera scutellata</i>	6	2	8
<i>Lasiglossum afrc-za01</i>	1	1	2
<i>Lasiglossum afrc-za02</i>	18	11	29
<i>Lasiglossum afrc-za02</i>		5	5
<i>Megachile (Eucricharax) venusta</i>		1	1
<i>Megachile (Paracella) frontalis</i>	1	4	5
<i>Nomia afrc-za01</i>	2		2
<i>Patellapis (Zonalictus) afrc-za02</i>		1	1
<i>Patellapis (Zonalictus) albofasciata</i>	1		1
<i>Selandonia afrc-za01</i>	5	11	16
<i>Selandonia afrc-za02</i>	10	8	18
<i>Selandonia afrc-za03</i>	27	12	39
<i>Waimia afrc-za01 (cf. algoensis)</i>	2	1	3
<b>Total number of specimens:</b>	<b>77</b>	<b>57</b>	<b>134</b>
<b>Number of species:</b>	<b>12</b>	<b>11</b>	<b>15</b>

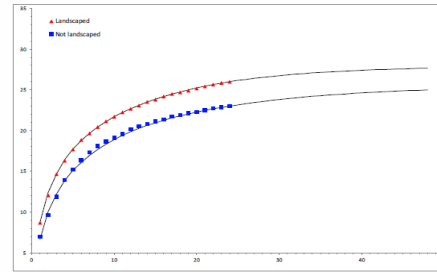
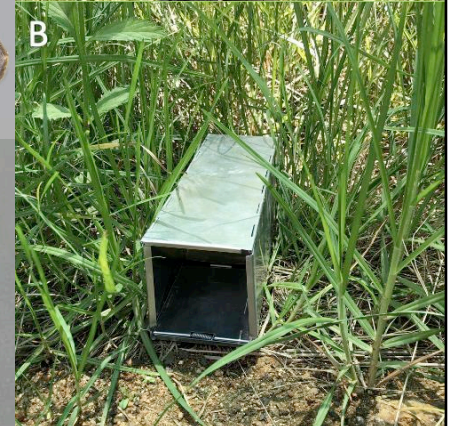
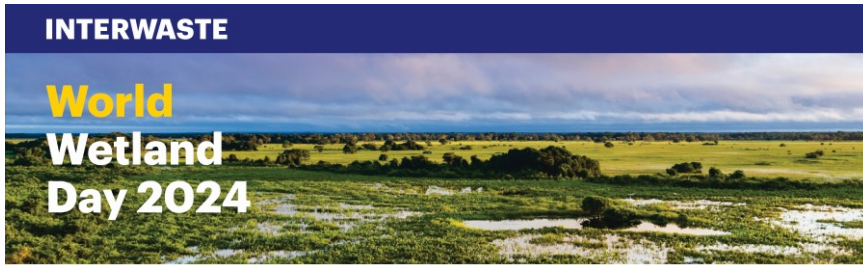


Figure 3-4. Ant species accumulation curves for landscaped and non-landscaped portions of the Biodiversity Enhancement Zone. Lines show curves extrapolated to 48 samples using EstimateS.



# Raising Awareness



World Wetland Day is a global initiative to raise awareness about the critical role wetlands play in maintaining biodiversity and ecological balance. In the South African context, our wetlands are treasures of immense ecological significance. As we celebrate this day, let's delve deeper into the state of wetlands in South Africa and explore comprehensive measures to ensure their preservation.

## South African Wetlands - Current Landscape



## INTERWASTE

A proud Séché environnement company

## Capture the Beauty of Biodiversity!

**Photographic Competition**  
22 - 29 May 2023

Join our exciting photographic competition and showcase the stunning biodiversity around you.

Celebrate the International Day for Biological Diversity by capturing the wonders of nature through your lens. It's time to take pictures, not samples!

### How to Participate

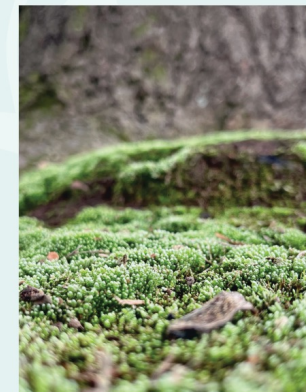
- 1 Explore biodiversity-rich zones in your regional area
- 2 Snap a photo of an interesting tree, bug or plant.
- 3 Submit your photo to [biodiversity@interwaste.co.za](mailto:biodiversity@interwaste.co.za)
- 4 Include a short description of why the subject is important to you, or why you believe biodiversity is important
- 5 Don't forget to include your name and depot in case you're selected as the winner.

**The winner will receive a biodiversity-friendly hamper to the value of R500,00 from the Refillery.**

Competition closes COB on the 29th of May 2023. Winners will be announced on the 1st of June 2023. Prizes may not be exchanged for cash. Employees without access to mail are encouraged to contact either their line manager or regional biodiversity champion for assistance to submit their entries.



Aloe Plant sprouting new branches, in the Interwaste Biodiversity HotSpot - Germiston Hub.



Moss Growing at the base of a tree. Interwaste HR lawn, Germiston Hub.





# An International Perspective

- Seche Environnement, Biodiversity Strategy 2023 - 2027

# History of Biodiversity Commitment



First biodiversity study piloted by an ecologist from Sèche Environnement on the founding site of Changé.



The Biodiversity department is growing from 2 ecologists to 6 today.



**Integration Settlements to nature and landscape**

**Actions in favor of life and Integration of biodiversity on sites with the largest land footprint**

**Group biodiversity commitments**

**Sèche Environment's Biodiversity Strategy In France and abroad**



Contribution to the National Biodiversity Strategy on 14 sites with the Ministry of the Environment



Ecocert Biodiversity Commitment Certification on 6 major sites with the largest land footprint



Commitment Companies Committed to Nature (EEN) act4nature with the French Office for Biodiversity (OFB)



Business for the Environment (EPE) launches act4nature International



# Business – Environmental Dependencies

The Group is dependent on nature on multiple levels to function. These free services that nature provides and from which the company makes a profit, are called ecosystem services. They are commonly classified into 4 categories.



## 1. Procurement Services

Resources provided by ecosystems

**Freshwater, Renewable energy and fossils, materials (Clay, Wood...)**

- 4 M m3 of fresh water
- 75 k tons of cement and hydraulic binders
- 167 k tons of sand
- 520 tons of clay



## 03. Cultural Services

Intangible benefits provided by ecosystems

**Inspiration, communication, transmission, aesthetic value, living environment ...**

- Logo Séché Environnement
- R&D, biomimicry, Nature-based solutions
- Pedagogical paths



## Dependencies



**Environment and biodiversity**



## 02. Regulatory services

Ecosystem-based processes of regulation

**Water quantity and quality, particularly in site basins, air quality, climate regulation**

- Production of biogas by biodegradation of organic matter contained in non-hazardous waste.
- Soil regulation contributes to the rehabilitation and re-vegetation of sites.



## 04. Support Services

Necessary to produce others ecosystem services

**Nutrient cycling, pollination...**

- Fermentation of organic waste
- Living spaces for plants and animals





# Business Impacts & Actions

The current rate of biodiversity erosion is largely attributable to 5 factors of pressure of human activity according to IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services).



## 01. Water pollution, soil and air

### Our impacts

**Aqueous discharges**  
**Releases into the air**

### Our actions

- Implementation of MTD
- ISO 14001 Certification
- Waste management
- Clean-up activities



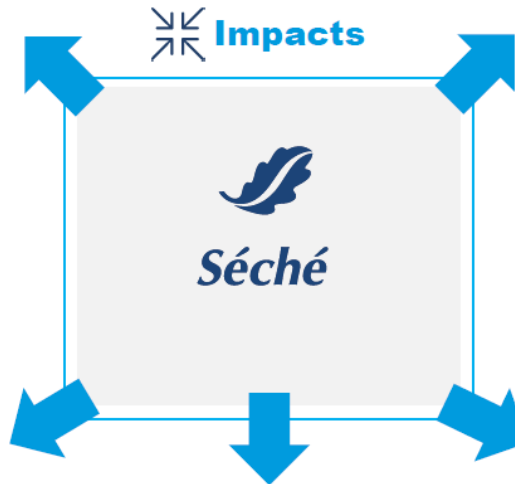
## 02. Destruction and fragmentation natural environments

### Our impacts

**Land use**

### Our actions

- Protocol on black frames
- Brownfield rehabilitation
- Establishment of ecologically sensitive areas and ecological corridors



## 03. Overexploitation natural resources

### Our impacts

**Consumption of natural resources**

### Our actions

- Water and energy sobriety plan**
  - Valorization of bottom ash
  - Production of Solid Recovered Fuel (SRF)



## 04. Proliferation of invasive alien species (IAS)

### Our impacts

**Risk of IAS proliferation on our sites and at our Clients.**

### Our actions

- Invasive alien species management procedures
- Species targeted on our sites: jussie, coypu, datura jimson, Asian knotweed, buddleia ...)



## 05. Climate change

### Our impacts

**700 k tons of fossil CO2e**

### Nos actions

- **Climate strategy:** reduce our induced emissions by -25% by 2030 compared to 2020, and by -10% by 2025 compared to 2020

# In-house Expertise

Within the Séché Environnement sustainable development department, the biodiversity team deploys the biodiversity policy in all 120 sites of the Group.

**Sustainable Development Department**

## **Biodiversity department 6 ecologists**

- **Education**  
Ecological engineering, agronomy, landscape
- **Expertise**  
Diagnosis, fieldwork, project coordination, bats monitoring
- **Antiquity**  
Up to 20 years of antiquity

### **Actions on 100% of sites**



### **Collaboration**

with operational teams and support departments

### **Animation of the 30 Act4Nature sites**



### **Network of 30 Act4nature ambassadors**

Volunteer collaborators  
(at least one per site)

### **Certification of the 6 Ecocert sites**



**Sites of larger areas  
(which is 21% of the  
Group's land area)**



# A global strategy

30 volunteer sites

## Promote the ecological functionality of sites

Initiated in 2013 with the commitment in the National Strategy for Biodiversity (SNB), the group continues its involvement in the Act4Nature initiative for 5 years. A total of 30 sites (25 in France and 5 internationally), including 13 new ones, are joining this voluntary approach.

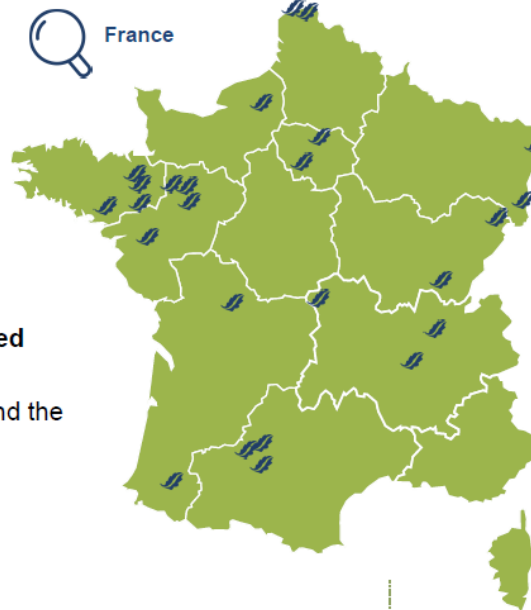
### 1. Know and Act

### 2. Educate and Raise Awareness

### 3. Commit at all levels

- At least 4 actions on each site (until 2027).
- **One biodiversity ambassador per site with a dedicated budget**
- Creation of a participatory momentum with employees and the local area.
- **Verification of actions by external stakeholders.**
- **Annual report on actions.**

**Objective: Respect a progress schedule of 20% per year.**



Europe



World



Act4Nature Site Maps

*act4nature*  
international



These achievements are voluntary and regulatory developments.

### Amphibian and reptile shelters:

Temporary and permanent ponds, low walls, hibernaculum, egg-laying areas, specific management areas for reptiles.



### Vegetation development:

High and low hedges, on slopes, seeding, afforestation, etc.



### Natural area management practices:

Late mowing, eco-pasture and free movement to maintain green spaces and preserve certain animals ("goat of the ditches", Landes de Bretagne sheep, chickens, Pie Noir cows, etc.)

**70 km of hedges**  
planted between 2010 and 2022 on sites with high biodiversity potential.



**80 ponds**  
established, the majority of which are in sensitive ecological areas.

**Bird and bat shelters:** Nesting boxes, screech holes and attic space to create shelters for birds of prey and other species.

### Developments and shelters for educational purposes:

For example, aromatic spirals and insect hotels, supplementing plantings and micro-habitats, help to attract pollinators, arachnids and many other invertebrates..

### And many other habitats and micro-habitats

Wetlands, flower meadows, wet meadows, strips of sand, shelter areas for turtles that are victims of illegal trafficking.





# Concluding Remarks



## Concluding Remarks

Waste management activities can potentially impact on biodiversity

The aim should be to reverse degradation AND further promote biodiversity, not only mitigate further decline

A circular waste economy can aid to reduce impacts on biodiversity

Should the nature of waste management activities preclude the need to promote biodiversity?



# Thank You!

**Bradley Thorpe (Pr. Sci. Nat.)**

GM Technical Services for Interwaste (Pty) Ltd.  
South Africa

## **INTERWASTE**

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