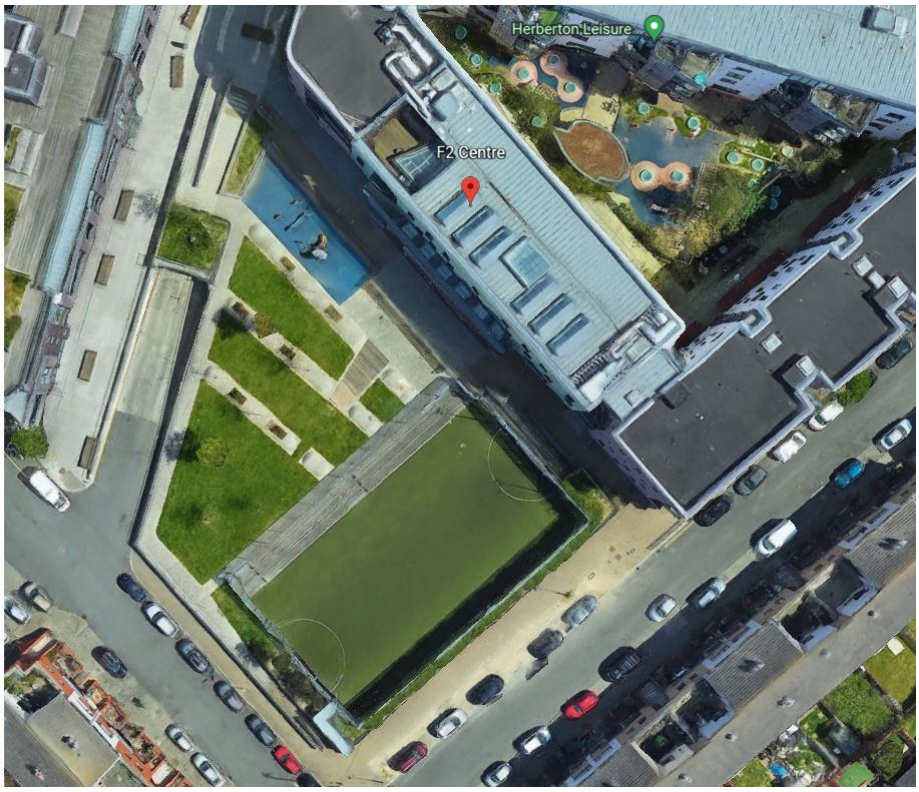

COMMUNITY BIODIVERSITY ACTION PLAN 2023

For Fatima 2 Rialto Dublin 8

Commissioned by The Fatima Groups United. & funded by Community Foundation Ireland

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Contents

Introduction

Ireland is a land of contrasting landscapes - peat bogs and limestone pavement, steep cliffs and rolling coastal dunes, rugged mountains and damp lowland pastures defined by a network of hedgerows, stone walls and patches of woodland and scrub. Equally so, we possess a landscape dominated by intensive agricultural practice, commercial forestry operations, degraded peatlands, heavily modified waterways, and urban developments permeated with ecological depletion. Recent scientific studies have linked human exposure to nature with increased energy, a heightened sense of well-being and numerous health benefits (Maller et al. 2008, Townsend et al. 2015). These studies confirm what we instinctively know and feel already. With our recent experiences during the covid pandemic, and its global implications, we have learned to appreciate biodiversity as much in a local setting as we should do in a global context. People are spending more time outdoors; walking, running, cycling, gardening, and reconnecting with nature. Communities are coming together to look after their local environment, preserving their patch and learning more about the natural environment on their doorsteps. Additional benefit to blending nature with urban living may also aid in tackling other global environmental problems such as the 'Urban heat Island effect' (the absorption and release of heat from concrete, steel, and asphalt infrastructure) and in transitioning cityscapes into functioning carbon sinks. It is expected that by 2050, 68% of the world population will live in cities (UN, 2018). Other research into urban greening suggests benefits in reducing vulnerability to floods, increases in prosperity and even reduced crime levels (Wolf, 2010). Our urban spaces must be considered as a microcosm of what we want to achieve in the wider landscape.

While there are both global and national efforts to conserve the natural environment through legislation and policy, the role of local communities in the conservation of our natural heritage is crucial. Communities must play their part in addressing the biodiversity crisis too. The aim of this biodiversity plan is to raise awareness of biodiversity and to empower the local community to undertake actions for the conservation and enhancement of biodiversity in their local area.

Methodology

This biodiversity plan is the culmination of a site assessment and biodiversity audit combined with extensive desk analysis into urban greening and infrastructural constraints. Fintan Damer, Consultant Ecologist, worked with representatives from the Fatima 2, gaining valuable specific local knowledge which was essential for the selection of spaces to be included in the development of this plan. Desktop research was carried out including a review of protected species from the National Parks and Wildlife Service, records from the National Biodiversity Data Centre (biodiversityireland.ie) and historic maps.

Developing the Community Biodiversity Plans had four key aspects:

Mappings - habitat mapping using the Fossitt classification system (Fossitt 2000).

Inventory - A list of native flora and fauna

Actions - What can be done to conserve, enhance and develop habitats, where and how.

Linkages – How the plan can be associated with EU legislation such as the habitats and birds' directives, national legislation and policy documents related to the environment and local authority county plans and initiatives such as the All-Ireland National Pollinator Plan.

Mapping

The Fossitt classification system provides data that is consistent and complementary. The standardised nature of its construct, which is widely used by environmental and ecological consultants, makes it particularly useful in the development of national policy such as the Soon to be revised 4th National Biodiversity Action Plan 2023 – 2027 (https://assets.gov.ie/233057/f1a92f68-e668-498d-a56c-df777a19b549.pdf), currently out for public consultation and of course in the development of Ecological Impact Assessments (EcIAs) for use in planning processes.

Given the distinctly urban nature of this site with extensive city infrastructure (dwellings, roads, paving, paths walls, drainage systems etc.), it was envisaged from the outset, that there would be limited existing biodiversity and that recommendations would likely centre around the development of new habitat concept proposals rather than the enhancement or protection of existing biodiversity.

Inventory

The inventory consists of a list of native flora and fauna including vascular plants as well as birds and insects were detected. Gathering of botanical data is of particular interest as indicator species will determines the precise Fossitt Habitat classification to level 3 (Fossitt 2000). All species are recorded using scientific procedures for species recording (Scannell & Sinnott, 1990) including common and scientific names and have been submitted to the National Biodiversity Data Centre database. Attention was also given to the presence of non-native invasive species where detected. Invasive species when detected, are submitted to the National Parks and Wildlife Service (NPWS), which include those listed in the 3rd schedule part I, Non-native species subject to restrictions under Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (transposed from the habits directive). 13% of the 377 non-native species assessed for impact in Ireland, are considered invasive. The impact of invasive species on our native wildlife cannot be underestimated. Even were not detected it is always worth being continually vigilant as invasives can materialise and take hold rapidly if left untreated.

Actions

This is the detailed description of relevant, attainable, and verifiable actions to develop, enhance or protect biodiversity including specifics on why each action is important and where precisely it should be carried out. A clear understanding of how this can be done, under what time scale i.e., short term, medium term, long term and at what time of year if this is critical is provided. Of chief importance here is to communicate the importance of long-term gains and the requirement for ongoing monitoring to ensure benefits have a lasting positive impact well beyond the time scale of the implementation of the community Biodiversity Action Plan (CBAP).

Linkage

European Directives have helped shape national legislation and policies towards the protection and conservation of biodiversity. The EU Habitats Directive and Birds Directive have directed the

establishment of Special Areas of Conservation (SACs) for habitats and certain species and Special Protection Habitat (SPAs) for the protection of birds. In addition, there are also Natural Heritage Areas (NHAs) and Proposed National Heritage Areas (pHNAs) which still await full designation. Several such designated sites and major landscape features exist in Dublin, the closest of which to Fatima are the Grand Canal pNHA, at just 400m to the south as the crow flies. The nearest SAC is South Dublin Bay SAC at 5.4km to the east while the South Dublin Bay and River Tolka Estuary SPA is just 4.9km to the northeast. Futher details on these protected sites can be found at https://www.npws.ie/protected-sites . Although there may currently be limited linkage between these designates sites and urban spaces such as Fatima 2, the hope is that through the development of a network of green spaces, linked with the simultaneous creation of greenway, we will see the development of wildlife corridors which will provide dispersal and expansion routes for many plants and animals which are currently isolated and fragmented; a biodiversity highway linking biodiversity hot spots.

Habitat is the natural home of animals, plants, or other organisms. It can be an area such as a woodland or grassland or a feature such as a tree or a stone wall. Biodiversity or biological diversity describes the variety of life on earth. It includes all living things, people, plants, animals, fungi and microorganisms and the places (habitats) where they live. Biodiversity is just another term for nature, flora and fauna, natural heritage, wildlife, and the living environment and how they are linked and interact and, in many cases, how they are co-dependent. We all interact with biodiversity and the living environment every day as we go about our daily lives. The designated conservation areas provide protection for critical biomes that contain the best examples of Irish habitats and important populations of certain species. However, these areas only contain a representative fraction of Ireland's biodiversity, and it is important that biodiversity is afforded protection outside of nationally designated sites or national and regional parks. Biodiversity is all around us, in urban and rural settings, from gardens to hedgerows, woodlands to wetlands, rivers to coastlines. Even abandoned quarries, disused industrial sites or derelict buildings can support biodiversity.

The EU Water Framework Directive and the EU Nitrates Directive are important for the protection of our waters both marine and freshwater and these have been transposed into Irish legislation. At a national level, the most important legislation for the protection of wildlife is the Wildlife Act 1976 to 2021 (as amended). Conservation policy has also been driven by Ireland becoming a signatory to the Convention on Biological Diversity 1992. On signing, Ireland undertook to promote the conservation and sustainable use of biological diversity. This led to the development of a National Biodiversity Plan promoting the need for the integration of the conservation and sustainable use of biological diversity into all relevant sectors and into the development and implementation of other policies, legislation, and programmes. Local Authorities have adopted Local (County) Biodiversity Action Plans and this Community Biodiversity Action Plan complements the Dublin City Biodiversity Action Plan 2021-2025 and should be read and interpreted in conjunction with it. The ICLEI (Local Government for sustainability), Which Dublin City Council is a part of, is a global network which works with over 2,500 local and regional government bodies. It highlights 10 reasons for the preservation of biodiversity in cities:

1. Ensure the quality of ecologically relevant areas.
2. Improve air quality.
3. Ensure higher quality and availability of water in aquifers and reservoirs.
4. Reduce the risk of erosion and protection from landslides.
5. Minimize the risk of extreme events.
6. Promote sustainable urban food systems.

7. Greater vector control of zoonoses diseases that can be transmitted between animals and humans) and poisonous animals.
8. Promote thermal comfort (Heat Island effect).
9. Promote quality of life and wellness.
10. Raise awareness about coexistence with other living beings.

By way of drawing attention to the actions taken in this plan and linking it to national policy and undertakings such as the All-Ireland Pollinator Plan, all the attempts to reverse the decline in biodiversity should be logged by signing up to the online mapping system at https://pollinators.biodiversityireland.ie/ (Fig 1.). Specific areas can be mapped with polygons and descriptions provided for what you have achieved. Remember that achievements can also include efforts made to protect an existing valuable habitat by highlighting its importance and ensuring it remain undisturbed. Actions can also include submitting records of all observed wildlife on an ongoing basis. This can be conveniently achieved by using the National Biodiversity Data Centre capture app form a mobile device.

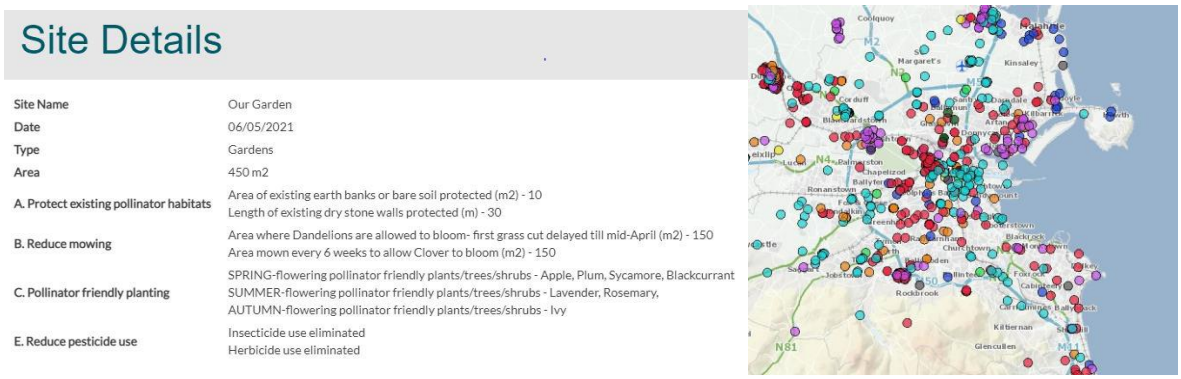

FIGURE 1. EXAMPLE OF MAPPING ENTRY. HTTPS://POLLINATORS.BIODIVERSITYIRELAND.IE/

Fatima 2 and Local Environs

Fatima 2 is an extensive public housing complex, formally known as Fatima Mansions prior to the major urban renewal programme (2004-2007) which consisted of the demolition of the all the existing apartments to make way for 600 new accommodations units and associated community, business, and leisure facilities. It is in the southwest inner-city suburb of Rialto Dublin 8 just north of the Grand Canal and within 2.5km of Dublin city centre.

The focus of this biodiversity plan is centred around the reimagination of Reuben Plaza which is set in the heart of the Fatima 2 redevelopment (Fig.2). Currently the Plaza consists of an all-weather pitch, a playground, paved areas, and associated pathways access ramps and steps, a grassed area with a small number of standard non-native trees (*Acer sp.)*, some ornamental low level shrub planting of snow berry (*Symphoricarpus sp.)* and some

ornamental cherry *(Prunus sp.)* and Scot's pine *(Pinus sylvestris)* in boxed planting areas. Fig. 3 maps the habits presents at Reuben Plaza using the Fossitt Classification system. The area in general has low levels of biodiversity, largely attributed to its prevalent coverage with artificial surfaces and the deficient non-native nature of the ornamental planting. Most of the trees present are deteriorating with some having succumbed, most likely due to the poor growing condition afforded to them.

FIGURE 2. REUBEN PLAZA AS IT CURRENTLY STANDS

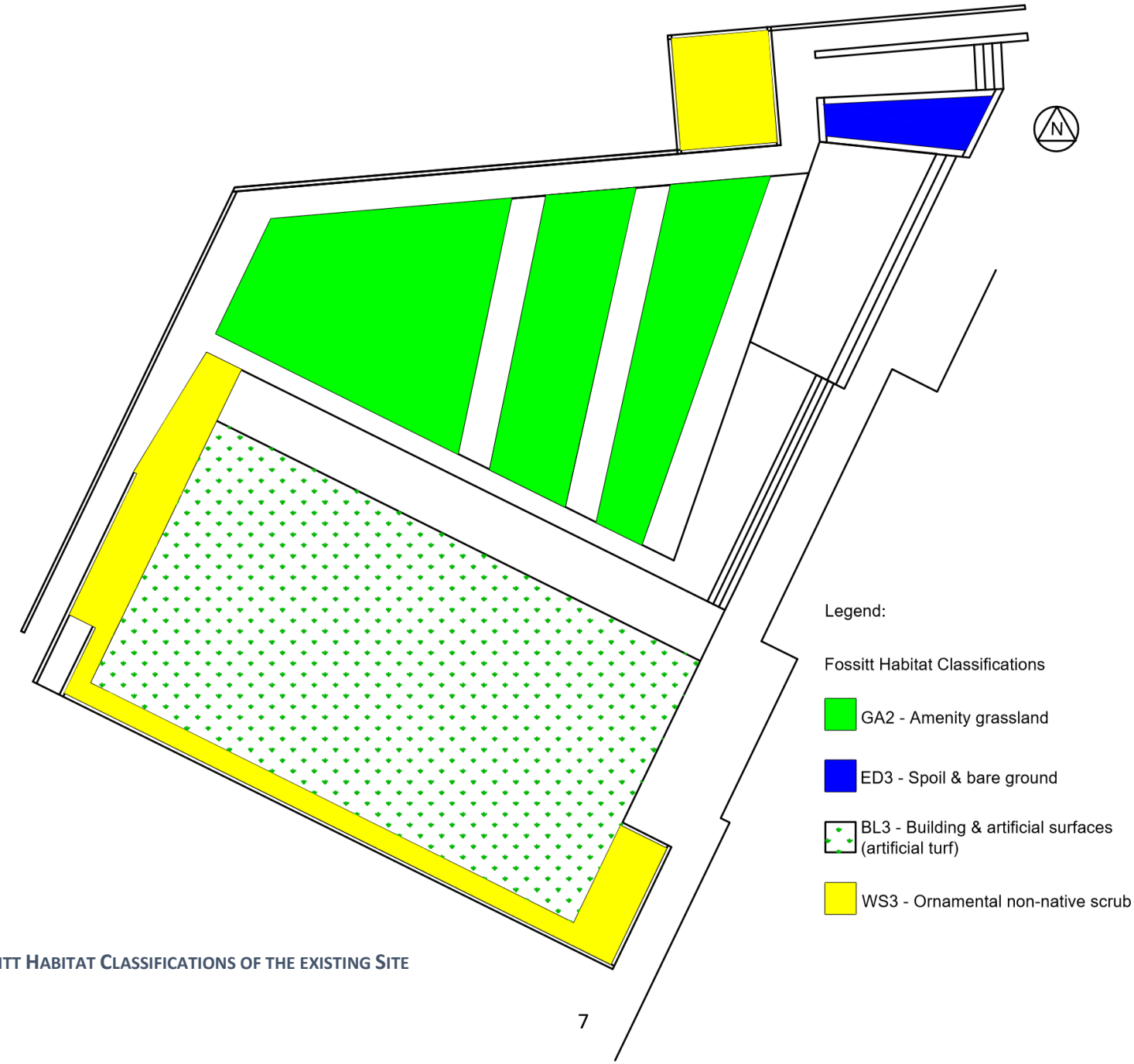

FIGURE 3. FOSSITT HABITAT CLASSIFICATIONS OF THE EXISTING SITE

Species Inventory

The inventory of species identified on the site, following a survey on 8th October 2022, is set out in Table 1. below. Apart from the ornamental species, all the plants are common 'weed' species typically found in areas managed as amenity grassland, gardens, parks, grounds of various building, disturbed ground and artificial surfaces which have been naturally colonised by herbaceous plants.

TABLE 1 . SPECIES INVENTORY

Common Name	**Latin Name**
Plants	
Annual meadow grass	*Poa annua*
Chickweed, Common	*Stellaria media*
Charlock	*Sinapsis arvensis*
Creeping buttercup	*Ranunculus repens*
Dandelion	*Taraxacum agg.*
Germander speedwell	*Veronica chamaedrys*
Groundsel	*Senecio vulgaris*
Hawkbit, Autumn	*Scorzoneroides autumnalis*
Plantain, broad leaved	*Plantago major*
Ragwort	*Jacobaea vulgaris*
Red fescue	*Festuca rubra*
Ryegrass	*Lolium perenne*
Scarlet pimpernel	*Anagallis pimpernel*
Scutch grass	*Elymus repens*
Smooth sow thistle	*Sonchus oleraceus*
Spear thistle	*Cirsium vulgare*
Sun spurge	*Euphorbia helioscopia*
Plantain, broad leaved	*Plantago major*
White clover	*Trifolium repens*
Yarrow	*Achillea millefolium*
Birds	
Herring Gull	*Laurus argentatus*
Feral 'City' pigeon	*Columba livia (domest.)*

Other than plant species and a small bird cohort, no other biota were recorded during the survey. This is to be expected given the urban nature of the site.

Recommended Actions

Creation and Management of Semi-Natural Grassland

The most cost-effective way to provide food for pollinators is to reduce the frequency of mowing in some areas and allow wildflowers to grow naturally in the longer grass. However, this does not mean that you must let the space grow completely wild. The actions below suggest different ways that you can reduce mowing to make your grassland more diverse and in particular, useful for pollinators. Aim to have at least 30% grassland managed for pollinators, which still leaves 70% available for amenity usage. This is in line with a world-wide initiative for governments, agreed at the Convention of Biological Diversity (COP15), to designate and protect 30% of the earth surface by 2030.

Action 1

Create a short-flowering meadow. Given the limitations of this site, coupled with the short sward nature of the meadow, it would be desirable to have the entire grassed area managed as short meadow. Consider cutting areas of grass on a 4-6-week rotation. This will allow short crop flowers like Clover or self-heal to bloom continuously, providing food for pollinators from May to September. The primary objective here is that within a 4–6 week cycle, at least two thirds of that time, there will be plants actively flowering and producing nectar. Grass clipping must be removed in all instances. Overseeding with an appropriate short cut floral lawn seed mix will increase the diversity significantly. This can be acquired from www.wildflowers.ie using the product code DW01- short flowering meadow. Table 2. Is the species List present in this mix.

TABLE 2. SHORT MEADOW SPECIES MIX.

Common Name	**Latin Name**
Birdsfoot Trefoil	*Lotus corniculatus*
Black Meddick	*Medicago lupulina*
Burnet Saxifrage	*Pimpinella saxifrage*
Common Poppy	*Papaver rhoeas*
Cowslip	*Primula veris*
Cornflower	*Centaurea cyanus*
Cuckoo flower	*Cardamine pratensis*
Eye bright	*Euphrasia offinalis*
Forget-me-not, field	*Myosotis arvensis*
Hawkbit, Autumn	*Scorzoneroides autumnalis*
Hawkbit, Rough	*Leontodon saxatilis*
Hoary Plantain	*Plantago media*
Kidney Vetch	*Anthyllis vuleraria*
Lady's Bedstraw	*Galium verum*
Marjoram	*Origanum vulgare*
Meadow buttercup	*Ranunculus acris*
Oxe eye Daisy	*Leucanthemum vulgare*
Quaking Grass	*Briza media*
Red Bartsia	*Odontites vernus*

Red Clover	*Trifolium pratense*
Ribwort Plantain	*Plantago lanceolata*
Selfheal	*Prunella vulgaris*
Scentless Mayweed	*Matricaria chamomilla*
Wild Carrot	*Daucus carota*
Yarrow	*Achillea millefolium*

Where additional seed sowing is carried out, it is recommended to sow in the Autumn as some species require a period of cold winter weather to break dormancy. It is important also to note that some species can take several years to germinate before attaining their full potential (Fig 4.).

FIGURE 4. SHORT FLOWERING MEADOW

Over time, through the continual removal of clippings, mowing operation should be reduced further and the introduction of the annual, Yellow Rattle *(Rhinanthus minor*), into meadow is highly recommended as this plant has a unique ability to parasitise grasses, naturally displacing their dominance which allows other less vigorous flowering species to establish hence its common nick name, 'the Meadow Maker' (Fig.5)

FIGURE 5. YELLOW RATTLE, OTHERWISE KNOWN AS THE 'MEADOW MAKER.'

Early flowering dwarf bulb species, although non-native, can be planted in addition, including snow drops, *Galanthus nivalis* and Crocus, *Crocus vernus* (Fig.6), both of which are an early source of nectar. When planting these bulb species, the first mowing should not occur until May. Raising mower height will improve the diversity and resilience of the meadow further with the majority of developing flower buds remaining upcut below the mowing height.

FIGURE 6. SNOW DROPS AND CROCUS IN A LAWN PROVIDING EARLY NECTAR

Action 2

'No mow May.' A hugely beneficial strategy which asks that mowing operations be delayed until May is out. This allows for early flowering grassland plants, in particular Dandelions, which flower principally from March to May, to be available to bumble bees which are frequently active from early in the year when there is often a shortage of nectar producing flowers (Fig.7). This strategy can be done in conjunction with Action 1. Once regular but reduce moving has begun it is important to ensure that cut material is remove and not allowed to decompose back into the sward. This ensures a gradual reduction in fertility of the soil over time which conversely assists in increasing the plant diversity of the meadow. Cutting height should never be lower than 75mm (3 in.) This ensures the ongoing survival of the maximum number of meadow species, many of which would die out if regularly cut to short.

FIGURE 7. EARLY FLOWERING 'NO MOW' DANDELION MEADOW

Action 3.

Create a long-flowering meadow. These types of meadows are generally most suited to the large grassland areas. There is an absence of such habitat at Fatima so as an alternative it is recommended to utilise the planting boxes located on Reuben Street (Fig.8) any tree planting pits on any adjoining streets.

FIGURE 8. STREET PLANTER BOXES SUITABLE FOR TALL FLOWERING MEADOW

These will provide native flower displays continuously for an entire season, March to October. This type of planting scheme will likely be better adapted to the restrictive growing condition in these planting boxes than the shrubs currently occupying them. This type of long flower meadow would be cut in late September or early October and the vegetation removed. The meadow seed can be acquired from www.wildflowers.ie using the product Code DW03 – Tall Wildflowers. Table 3. Is the species List present in this mix.

TABLE 3. TALL FLOWERING MEADOW MIX

Common Name	**Latin Name**
Alexanders	*Smyrnium olusatrum*
Agrimony	*Agrimonia eupatoria*
Bladder Campion	*Silene vulgaris*
Burdock	*Arctium minus*
Common Vetch	*Vicia sativa*
Corncockle	*Agrostemma githago*
Cornflower	*Centaurea cyanus,*
Corn Marigold	*Glebionis segetum*
Corn Poppy	*Papaver rhoeas*
Cow Parsley	*Anthriscus sylvestris*
Field Scabious	*Knautia arvensis*
Foxglove	*Digitalis purpurea*
Garlic Mustard	*Alliaria petiolata*
Greater Trefoil	*Lotus pedunculatus*
Lesser Knapweed	*Centaurea nigra*
Meadow Sweet	*Filipendula ulmaria*
Mugwort	*Artemisia vulgaris*
Mullein	*Verbascum thapsus*
Opium poppy	*Papaver somniferum*

Ox eye Daisy	*Leucanthemum vulgare*
Red Campion	*Silene dioica*
St. Johnswort	*Hypericum perforatum*
Scented Mayweed	*Matricaria chamomilla*
Sorrel	*Rumex acetosa*
Teasel	*Dipsacus fullonum*
Upright Hedge Parsley	*Torilis japonica*
Weld yellow weed	*Reseda luteola*
White Bedstraw	*Galium album*
Wild Angelica	*Angelica sylvestris*
Wild Carrot	*Daucus carota*
Yarrow	*Achillea millefolium*

It is imperative to ensure that any floral additions are guaranteed to be of Irish provenance, in other words that they are not just native species, but seed sourced locally in Ireland. This ensures the preservation of our native and unique genetic diversity. Seed should be collected prior to cutting down in the Autumn and used for subsequent sowings, thus ensuring the preservation of the provenance and the possibility of expanding the use of this meadow mix to other areas.

Action 4.

Do not use herbicide on lawns or grass areas or on uncultivated ground where wildflowers should be allowed to grow and provide valuable food for pollinators. If some areas must be kept somewhat managed, weed manually instead of spraying. Where you perceive a risk that wild plants such as nettles or docks are likely to dominate and supress other valuable pollinating plants, considered some judicious selective weeding but using mechanical hand methods rather than chemical options and always consider the potential negative ecological impact that the removal of native vegetation might have. Nettles for instances are a very valuable food source for many of our butterfly larvae (caterpillars) (Fig.9) which in turn are a critical source of food for numerous birds, particularly for feeding nestling. The seed is also a valuable winter food resource for many birds, particularly finches.

FIGURE 9. PEACOCK BUTTERFLY AND CATERPILLARS ON NETTLES

Action 5.

Erect appropriate signage (Fig. 10) and log your achievement where any of these actions are taking place. It is imperative to inform the wider public that these areas are being actively and decisively management for wildlife and not being abandoned or ignored. Signage templates are available free to download on https://pollinators.ie/resources/. Log these areas on the publicly available mapping system at https://pollinators.biodiversityireland.ie to let everyone know you are playing your part for protecting pollinators.

FIGURE 10. EXAMPLES OF SIGNAGE TO INFORM ABOUT ACTIVE WILDLIFE MANAGEMENT.

Creation of Semi–Natural Woodland

Native semi natural broad-leaved woodlands occur across Ireland from acid to calcareous soils that are generally well drained or humid (e.g., Fig.11). This woodland type is represented by two categories in the Fossitt Classification (Fossitt, 2000), namely Oak-Birch-Holly Woodland, WN1 and Oak-Ah Hazel Woodland, WN2. They are, however, habitats of very limited distribution in Ireland, mostly in the west and where they occur, they are generally small. They are therefore regarded as being of high conservation importance. Natural native woodland represents just 1.25% of our land coverage (Cross, 2012). Creation of such woodland habitat, particularly in an urban setting, is therefore highly valuable.

Figure 11. Examples of Native broad leaved woodlands

Native woodland can often be dominated with Sessile Oak, Pedunculate Oak and Ash, but can consist of many other woody species capable of producing a woodland canopy. Table 4 below lists the recommended trees and under-storey shrub species for this site.

TABLE 4. RECOMMENDED TREE CANOPY AND SHRUB SPECIES.

Common Name	Botanical Name	Recommended Specification
Downy Birch	*Betula pubescens*	Root balled - Multi stem
Rowan (Mountain Ash)	*Sorbus acuparia*	Root balled - Multi stem
Hazel	*Corylus avellana*	Root balled
Holly	*Ilex aquifolium*	Root balled or 3L pot
Spindle	*Euonymus europaeus*	Root balled or 3L pot
Guelder rose	*Viburnum opulus*	Root balled or 3L pot

This site at Reuben Plaza is located over a podium deck i.e., a structural elevated slab or platform over an unconditioned space, in this case an underground carpark. These structures possess a waterproof membrane and in this this case the deck is topped with soil to facilitate the development of a green amenity area. With regards to the tree component, Oak sp. and Ash should be avoided due to their size and requirement for a deeper growing substrate, with the potential for root systems to impact the integrity of the water proofing membrane of the podium deck.

The main area recommended for this woodland development should be elevated through the grading of soil up to a maximum of 700mm above the existing height, in so doing providing additional growing medium to support tree establishment and reduce the possibility of excessive drought damage to any vegetation. (N.B It is also recommended that an engineer is consulted to ensure that the load bearing capacity of the podium deck is structurally capable of supporting any additional weight, in particular any additional growing substrate that may be required). The recommended soil grading and height for this development is presented in Fig.12 below.

All measurements in metres. (Not to scale)

FIGURE 12. SOIL CONTOUR DETAILS

The ground layer planting for this recommended development is represented by a variety of ferns, grasses, herbaceous plants, and bulbs. Where possible, these should always be represented by native woodland floor species, or when unavailable, by near-native species which have clear ecological value. Table 5. below lists the recommended ground layer species to use.

TABLE 5. RECOMMENDED GROUND LAYER SPECIES.

Common Name	**Botanical Name**	**Recommended specifications**
Wood Anemone	*Anemone nemorosa*	Mass planting throughout
Blue Bells	*Hyacinthoides nonscripta*	Mass planting throughout
Foxglove	*Digitalis purpurea*	Group planting in multiples of 7
Hart's Tongue Fern	*Asplenium scolopendrium*	Group planting in multiples of 5
Male Fern	*Dryopteris filix mas*	Group planting in multiples of 5
Soft Shield Fern	*Polystichum setiferum*	Group planting in multiples of 5
Primrose	*Primula vulgaris*	Group planting in multiples of 7
Lady fern	*Athyrium filix-femina*	Group planting in multiples of 5
Red Campion	*Silene dioica*	Group planting in multiples of 7
Ramsons (Wild Garlic)	*Alium maculatum*	Mass planting throughout
Remote sedge	*Carex remota*	Group planting in multiples of 7
Winter flowering Heather	*Erica carnea*	Mass planting throughout

With regards to all planting material used, it is recommended to ensure from your nursery supplier, that the plants are propagated from Irish sourced seed or propagation material. https://futureforests.ie is a reliable source for much of this woodland planting and can advise on the provenance of the plants. In all cases, it is recommended to plant early in the season (November to March), to ensure maximum survival rates and lessen the requirement for watering during the initial establishment stage.

Below (Fig.13) is a concept plan with elementary planting detail.

FIGURE 13. CONCEPT PLAN

Pollinator Nest Habitat Creation

Create nesting habitat for solitary mining bees. Solitary mining bees need areas of bare ground to be able to burrow into the soil and create their nests. Scrape away grass or vegetation particular on sloping ground which tends to stay vegetation free more easily (Fig 14.). South or east facing sunny spots are best for these mining bees. Scrape back any vegetation that grows on these earth banks manually each year, to ensure the spots remain bare. Be aware of existing bare ground areas which may already support mining bees and ensure they are not disturbed.

FIGURE 14. MINING BEE NEST BURROWS

Create nesting habitat for cavity nesting solitary bees. There are many ways to create nesting habitats for the small number of Irish solitary bees that prefer to nest in existing cavities. The following are some practical strategies and actions:

1. Some solitary bees' nest in hollow stems of plants. Many woody herbaceous plant and sub shrubs species have standing stems over the winter e.g., Foxglove, brambles, Wild Raspberries. Leave some of the old stems unpruned each year to provide habitats for these bees.
2. Drill south or east facing holes in wooden posts for solitary bees to nest in. These holes should be 10cm deep and range from 4-8mm in diameter. Add them at a height of at least 1.5 metres.

3. Buy or make a solitary bee hotel (Fig. 15) which can be affixed to a walls, fences, or freestanding on a post. Guidance on how to make your own can be found here https://www.gardenersworld.com/how-to/diy/how-to-make-a-bee-hotel/

FIGURE 15. BEE HOTEL FOR SOLITARY BEES

Erection of Bird Boxes

The general absence of natural nesting locations that cavity nesting birds require, particularly with regards to modern urban infrastructure, can be addressed through the provision of bird boxes. Bird boxes can be affixed to buildings or mature trees, generally best facing between east and north to avoid prevailing rain and exposure to mid-day sun. Ruben Plaza possesses high suitability for the establishment of a swift colony as swifts show a high propensity to choose tall building as their preferred nest locations and often choose towns and cities for this reason. Swifts are red listed as a Bird of Conservation Concern in Ireland (BOCCI) which puts them in the critically endangered category. There population has decline by as much as 40% since 2008 (Fig. 16).

FIGURE 16. SWIFT

Swift boxes should in all cases be placed on building just under the roofline at a minimum heigh of 5m. Boxes can be arranged in clusters to encourage colony formation (see Fig.17). https://www.swiftconservation.ie/ is a particularly useful resource for information on Swift conservation, including how to build your own swift nest boxes and how to install a swift attraction call system. These lure systems require a licence from the NPWS, however, if you register your swift conservation measures with Swift Conservation Ireland, you will be covered under their general licence. Swift are recorded regularly in Dublin city with significant numbers recorded around the Wolf Tone Quay / Cunningham Road / Infirmary Road area with the closest record being at St Patricks Tower off Watling Street at just 950m northeast of Fatima in May of 2022. This records from the NBDC provide hopeful evidence that attracting Swift to Fatima would be very much possible.

FIGURE 17. SWIFT BOXES UNDER EAVES.

Although House Martin can build their own cup shaped mud nests, erecting artificial nests can encourage a colony to establish. House Martin show a preference for shorter building as a nest location so any of the residential houses on the square or in the locality would be suitable. Just under the roofline is the required fixing location (Fig.18).

FIGURE 18. ARTIFICIAL HOUSE MARTIN NESTS WITH A NATURAL NEST BUILT ALONGSIDE

One of the big limiting factors for House Martin establishing colonies in cities, is the lack of open ground that may produce muddy pools. It is the mud from these pools that House Martin require to build their own nests (Fig.19).

Climate change and the increasing occurrence of dry spring weather is seriously hampering the ability of House Martins to build their own nests. Provision of a consistently wet area during the nest building season (March-June) where mud can be conveniently accessed, perhaps in the Flanagan's Fields Community Garden, could greatly enhance the prospect of this declining species.

FIGURE 19. HOUSE MARTINS COLLECTING MUD

Bird boxes can also be utilised by blue tits, great tits. coal tits, House sparrow and Starling with appropriately sized entrance holes, ideally positioned facing between east and north, between 2.5 and 4 metres high and near to shrubby vegetation if possible. Although none of these relatively common bird species were recorded (likely due to a lack of suitable habitat), they are all tolerant of nesting near to human activity and habitation. The proposed planting scheme which will include numerous mature native trees, will significantly increase insect life and the likelihood of many of these bird species taking up residence in the area and potentially nesting.

Attracting Bats

Although a search on the NBDA website returned few bat records, Common Pipistrelle (*Pipistrellus sensu stricto*) was recorded from a biodiversity audit carried out at Aras An Uachtarain in the Pheonix Park in May 2020 and it is a pipistrelle species, soprano or common, that are most likely to be attracted to use the newly created landscape at Reuben Square. Bat frequently use linear features such as hedgerows and treelines, and water bodies such as rivers, streams and canals, as foraging and commuting corridors. Although hedgerows and trees lines may often be absent from urban areas, waterbodies do feature well in relative proximity to Fatima. The River Liffey is 1km to the north, the Camac River just 600m to the northwest and at its closest the Grand Canal at 400m to the south. All these water bodies likely hold strong potential for bats as most of our bat species show strong propensity for feeding over water bodies. The key would be to link these water bodies to Fatima through the development of continuous unbroken treelines, similar to those in Fig. 20. Studies have found that the provision of a continuous trees canopy favours the occurrence of most bat species, in the case of common pipistrelle, an increase by up to 94% was found (Lewanzik,

etal.,2022). The possibility of replacing the trees currently planted in boxes on Reubens street, with tree planted directly in the ground, that will produce far larger crowns, should be investigated with Dublin City Council.

FIGURE 9. CONTINUOUS UNBROKEN LINES OF LARGE TREES SUCH AS LONDON PLANE (PLATANUS ACERIFOLIA), COULD BE USED TO CREATED COMMUTING CORRIDORS FOR BATS

The Luas line which runs partially along the linear park at James walk just north of Fatima, could be utilised in this regard with the addition of a green corridors created by large mature trees along Reuben Street and perhaps linking to Dolphins Barn and to the Grand Canal to the south. In addition, it would be worth exploring the possibility of adapting current lighting features/operations in public areas in the greater Rialto area to be better suited to bats, many species of which shy away from bright artificial lighting. Specialist fitting are available that can reduce upward light spillage by up to 98% while still providing lighting to public areas that need it. Motion sensitive light are another option. Provision of water, prevention of light pollution connectivity of habitats and the presence of large deciduous tree canopies are all that required to persuade bats (Fig.21).

SOURCE: URBAN POLLUTION MARCH 2022. HTTPS://DOI.ORG/10.1016/J.ENVPOL.2021.118785

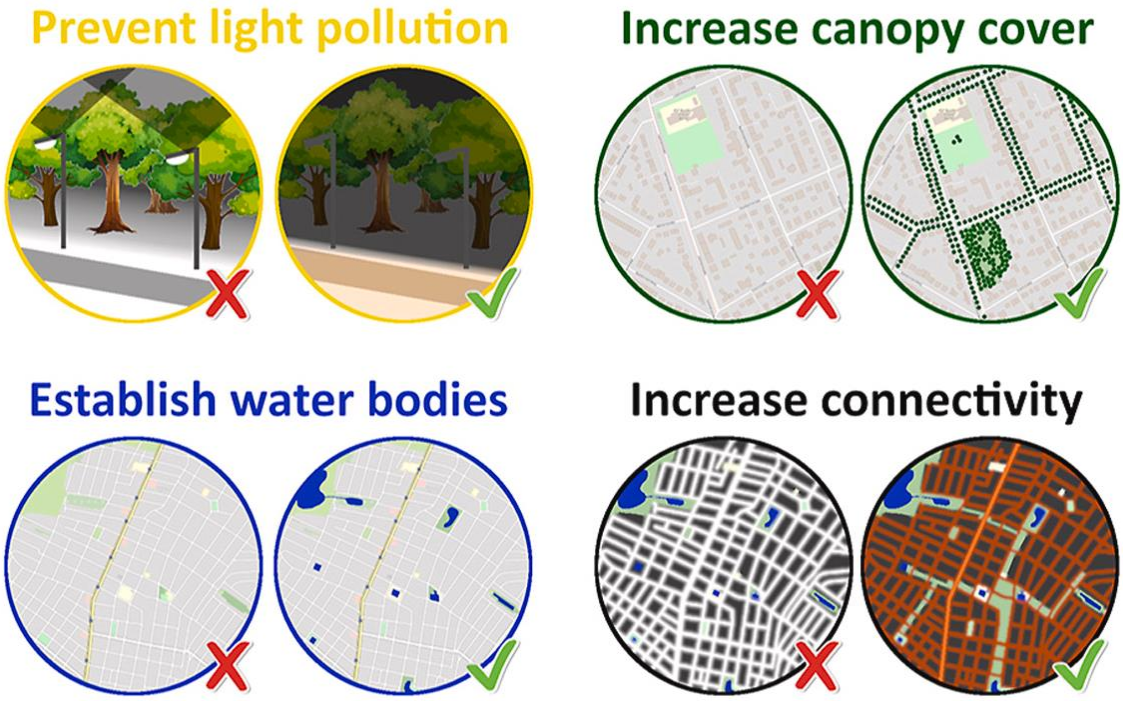

FIGURE 10. HOW TO IMPROVE CONSERVATION OF BATS IN URBAN AREAS

Apart from the lack of suitably large trees and green sites for feeding and commuting in cities, one of the biggest reasons why bats are declining in cities and towns is the loss of suitable roost sites as a result of old building restoration works and the 'clean' facades of modern building which don't possess the crevices or cavities needed for roosting. A solution to this is the erect bat boxes on large trees or on the building facades.

A clear flightline to a box is required, fixed at a height of at least 4-5 m. grouping of boxes is best with a few different orientations such as on the corner of a building or surrounding the trunk of a large tree. This allows bat to choose the box that best suits them, depending on the time of year. A warm southern facing box is often the choice in the summer while a cool northern facing box is more suited for winter hibernation. Avoid completely place near artificial light sources. Figure 22 Shows some typical bat boxes. If considering making your own, rough sawn untreated timber should be used. A design for bat boxes can be found at https://www.rspb.org.uk/get-involved/activities/nature-on-your-doorstep/garden-activities/build-a-bat-box/.

SOURCE: BATCONSERVATIONIRELAND.ORG

FIGURE 11. SONE TYPICAL BAT BOXES

Other Ancillary Recommendations

Flannery's Fields Community Garden (Fig.23), an initiative of the Rialto community Group and conveniently located east of Reuben Street, could be asked to partake with the self-propagation of some of the required planting for the Reuben Plaza concept landscape plan. Habitat constantly change over time; species will die out while others will thrive. By way of sustaining the diversity of the planting scheme at Reuben Plaza, either the purchase or propagation of native herbaceous species, will be needed. This could be an excellent way of ensuring continual community involvement in maintaining and developing further the biodiversity of Fatima, Rialto and the wider area beyond. Community garden can also be a reliable source of insect life and passerine bird species that feed on them as well as a location for nocturnal bat foraging. The planting of some permeant native trees on the site and allowing a wild corner to persist, were nettles and other highly beneficial 'weeds' would help in this regard.

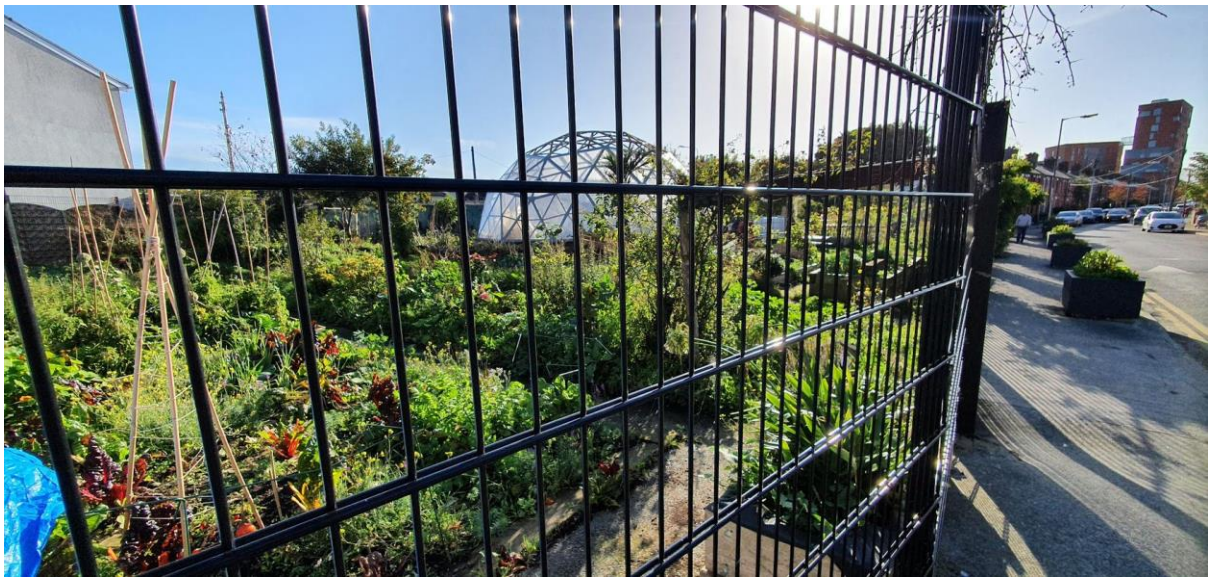

FIGURE 12. FLANAGAN'S FIELDS COMMUNITY GARDEN

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