

Biophilic Cities

Do we really need to choose between natural, horticultural and agricultural plants for our cities ?

Green is beautiful, ecology is smart and horticulture is the past? Two housing projects developed in Grenoble, a French city located in the Alps, offer a unique opportunity for a cohabitation between endemic local plants, with fruits and vegetables, and horticultural bushes and flowers. Both of these projects are telling: we don't need to choose between ecology and gardening to be sustainable!

The first project is located in Seyssins, a small city in the Grenoble suburbs, between the river Drac and the Vercors mountain foothills. The project (architecture GTB Architects) includes 55 flats, among which 30 are dedicated to social living, rented flats comprised mainly of families, and 25 flats sold to individual owners. Overall, there are over 150 adults and children living in this housing project. Together, they share a vegetable garden, an orchard and a collective roof garden. In addition, each family is given a small private garden or a large terrace. The top roof is co**vered with extensive meadows** mainly constituted of the identical plants found growing in the rocky soil of the mountain adjacent the apartments. Rainwater is collected in tanks and used for watering the vegetable garden and the roof garden. The gardeners are themselves the residents, some of them owners, others tenants. All together they manage the vegetable garden with the residents' association, which also provides and takes care of the gardening amenities (equipment and locale), the citrus trees integrated in the mail box room used as greenhouses, the watering installations and the orchard. Four years after the residents' arrival in their new flats, this project is a success, putting forward its multilayered biodiversity (an influx of birds and insects) and its social development.

The second project is still under construction in the south of Grenoble, near the city's main ring road. 150 flats will be built, among which, 20% are reserved for social housing families, 15% for student housing and 15% for retired residents. The housing is organized in terraces from the 4th floor up to the 11th floor. It integrates a large roof garden with a greenhouse, a vegetable garden and a small orchard. The rain water used for watering the roof garden is collected in a succession of extensive roof gardens with dry meadows. A wet forest garden is planted in the heart of the housing project. It is also the final area to collect and infiltrate all the rainwater.

Both of these projects are resilient in the face of climate change. They participate in mitigating the climate change impact in city housing, for summer comfort, as well as for winter wellbeing, with the added bonus of minimizing flooding risks and protecting the ordinary biodiversity of our cities.



At the top, a collective green garden (1.) then in the lower terraces, the kitchen garden (2.) and, further down, the collective square (3.)

LIVING WITHIN A KITCHEN GARDEN, A CO-OWNERSHIP PROJECT IN THE HEART OF A GARDEN IN SEYSSINS, WEST GRENOBLE - FRANCE



TREE 1 Acer campestre 2 Acer monspessulanum 3 Citrus bergamia 4 Citrus Kumauat 'Nagami' 5 Citrus limonia 6 Citrus nobilis 7 Cydonia oblonga 8 Fagus sylvatica 9 Malus 'Calville' 10 Malus 'Fer du Dauphiné 11 Malus 'Reine de Savoie' 12 Malus 'Reine des reinettes 13 Malus 'St Didier en Mont d'Or' 14 Malus 'Vierge du Pilat' 15 Myricaria germanica 16 Prunus avium 'Bigarreau 17 Prunus avium Karina' 18 Prunus domestica 'Quetsche d'Alsace' 19 Prunus domestica 'Reine-Claude d'Oullins' 20 Prunus 'Pêche de vigne - blanche' 21 Punica granatum 22 Pyrus communis ' Williams' 23 Pyrus communis 'Doyenne de Comice' 24 Pyrus communis 'Duchesse d'Angoulème' 25 Quercus pubescens 26 Sorbus aria 27 Ulmus resista 'Sapporo Gold'

VINES

Clematis armotica
Clematis montana 'Maylen'
Clematite Armandii
Clematis armandii 'Bagatelle'
Clematis armandii 'Etoile violette'
Clematis alpina 'andre devillers'
clematis armandii 'christian steven'
Hydrangea petiolaris
Jasminum nudiflorum
Lonicera alpigena
Lonicera japonica
Lonicera x pursii
Vitis cognatae

endemic plant horticultural plant edible plant

Seyssins - more than 14 000 plants, from 212 different species were planted. After 4 years, nearly 70% of them have survived.

FLOWER AND GRASS 1 Acanthus hungaricus 2 Alcea rosea 3 Alcea rosea 'Alba 4 Alchemille mollis 'Robusta' 5 Allium aflatunense 6 Allium caeruleum 7 Allium schoenoprasum L 8 Allium sphaerocephalon 9 Allium ursinum 10 Anthemis carpatica 11 Asplemnium trichomanes 12 Astilboides tabularis 13 Aubretia hybride 'Hamburger Stadtpark' 14 Blechnum spicant 15 Campanula latifoia 'Macrantha Alba' 16 Caryopleris x clandonensis 'Grand Blue' 17 Centaurea montana 18 Cerastium arvensis compactum 19 Crocosmia 'Golden Fleece' 20 Crocosmia 'Lucifer' 21 Crocus tommasiniasus 'Whitewell Purple' 22 Dianthus carthusianorum 23 Dictamnus albus 24 Dictamnus albus 'Albiflorus' 25 Epimedium alpinum 26 Epimedium pinnatum ssp. Colchicum 27 Eranthis hiemalis 28 Festuca amethystina

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SHRUB 1 Amelanchier lamarki 2 Amelanchier ovalis 3 Berberis vulgare 4 Buxus sempervirens 5 Callicarpa bodinieri 'Profusion' 6 Chaenomeles speciosa nivalis 7 Choisva ternata 8 Cornus Sanguinea 9 Crataegus monogyna 10 Daphne mezerum 11 Deutzia gracilis 12 Euonymus japonicus 13 Euonymus alatus 'Compactus' 14 Euonymus fortunei 15 Hydrangea arborescens 'Grandiflora' 16 Hydrangea aspera 'Macrophylla 17 Hydrangea quercifolia 18 Ilex aquifolium 19 Laburnum x watereri 20 Lagerstroemia indica 21 Ligustrum ibota 22 Ligustrum sinensis 23 Lonicera periclymenum 24 Nandina domestica 25 Osmanthus x burkwoodii 26 Philadelphus coronarius 27 Philadelphus 'Dame Blanche 28 Prunus spinosa 29 Rhamnus alpina 30 Rhamnus frangula 31 Rhodotypos scandens 32 Ribes alpinum Schmidt 33 Ribes niarun 34 Ribes uva crispa 35 Rosa arvensis 36 Rosa canina 37 Rosa carolina 38 Rosa rubiginosa 39 Rosa rugosa 'alba' 40 Rosa rugosa x Darthuis 41 Rosa x Bourbon 'La Reine Victoria' 42 Rosier grimpant 'Papa meilland' 43 Rosier grimpant 'Rose celeste' 44 Rosier grimpant 'Virgo' 45 Rosmarinus officinalis 46 Ruscus aculeatus 47 Salix lanata 48 Salix rosmarinifolia 49 Sambuscus nigra 50 Syringa x chinensis 51 Viburnum Burkwoodii 52 Viburnum lantana 53 Viburnum plicatum Shasta 54 Viburnum tinus

DRY GRASSLAND - GREEN ROOF 1 Anthemis tinctoria 2 Arabis serpillifolia 3 Armeria montana 4 Dictamnus albus 5 Artemisia chamaemifolia 6 Campanula alpestris 7 Calamentha nepeta 8 Dianthus arenaria 9 Dianthus corsicus 10 Echium vulgare 11 Eryngium bourgatii 12 Gentiana crutiata 13 Hyssopus officinalis 14 Hieracium pillasela 15 Iris tectorum 16 Linaria purpurea 17 Pulsatilla vulgaris 18 Phyteuma charmeli 19 Thymus vulgaris 20 Sempervivum calcareum 21 Stipa pennata 22 Tanacetum corymbosum 23 Thymus montanus 24 Carex carryophyllea 25 Luzula nutans 26 Daucus carota 27 Verbascum thapsus 28 Achillea millefolium

NS/

AG

ECOLE NATIONALE

SUPERIEURE D'ARCHITECTURE

DE GRENOBLE

ERANTHIS

55 Virburnum carlesii

4. Site plan - architecture GTB Architects Grenoble France

5. Collective green roof garden6. The Seyssins project viewed from the public stormwater management pond



7. Site section - Building into the slope, a shared underground parking and terraces (architecture GTB Architects) 8. View from the collective roof garden onto adjacent apartment terraces and, further on, the natural separative landscape



Biodiversity, wildlife refuge, wetland and dry grass meadow: 9. Bat house on the exterior of the lift shaft 10. Birdhouses in the orchard 11. Private wide planted raingarden and the public pathway marking the seperation between private and public spaces 12. Extensive green roof - dry grass association

A «GARDEN» BUILDING IN ECHIROLLES, SOUTH GRENOBLE - FRANCE



collective terrace: greenhouse, orchard, kitchen garden and solarium

central garden

extensive

green roof

private terrace

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