

LITTERFALL MONITORING IN URBAN FORESTS

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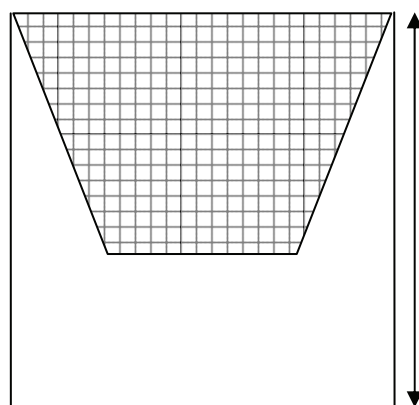
LITTERFALL SAMPLERS

- Diameter: 65 cm
- Collecting representative litterfall
- Left through the whole year
- Made out of alu whire and 'anti-mosquitos' net (polyethylen)

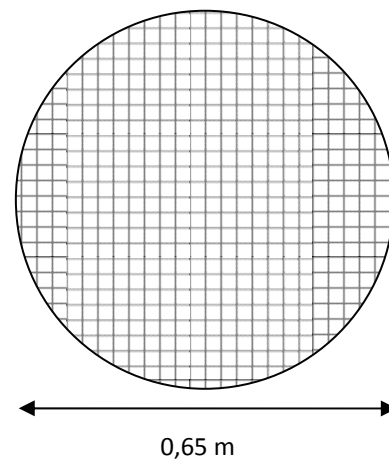


Figure 1: Litterfall traps in the plot

Side view



tloris



1 m

0,65 m

Figure 2: Dimensions of litterfall sampler

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Table 1: Status of variables for measurements at various levels

Form	Variable	Level I	Level II	Level II core
Biomass measures				
LFM	Dry weight per m ² [kg/m ²] for total litter biomass	n	o	m
LFM	Dry weight per m ² [kg/m ²] for foliar litter biomass	n	o	m
LFM	Dry weight per m ² [kg/m ²] for other litter biomass	n	o	m
LFM	Dry mass of 100 leaves or of 1000 needles [g]	n	o	o
LFM	Area of 100 leaves or of 1000 needles [m ²]	n	o	o
Chemical analyses				
LFM	C [g/100g]	n	o	m
LFM	N [mg/g]	n	o	m
LFM	S [mg/g]	n	o	m
LFM	P [mg/g]	n	o	m
LFM	Ca [mg/g]	n	o	m
LFM	Mg [mg/g]	n	o	m
LFM	K [mg/g]	n	o	m
LFO	Zn [µg/g]	n	o	o
LFO	Mn [µg/g]	n	o	o
LFO	Fe [µg/g]	n	o	o
LFO	Cu [µg/g]	n	o	o
LFO	Pb [µg/g]	n	o	o
LFO	B [µg/g]	n	o	o
LFO	Cd [ng/g]	n	o	o

o - optional m - mandatory n - not assessed

Table 2: Fractionation of litterfall

Fraction of Litterfall	Level II	Level II core plot
Total litter biomass kg/m ² (all species)	o	m
Foliar litter total (all species)	o	m
Foliar litter (main species)	o	m
Foliar litter (other tree species)	o	m
Non foliar litter total (all species)	o	m
Flowers total (including catkins)	o	o
Flowers (main species)	o	o
Flowers (other species)	o	o
Fruits/seeds total (all species)	o	m
Fruits/seeds total incl. green cones (main species)	o	m
Fruit capsules + empty cones (main species)	o	o (m [*])
Rest of fruiting	o	o
Fruits /seeds total incl. green cones (other species)	o	m
Fruit capsules + empty cones (other tree species)	o	o
Bud scales	o	o
Wood fraction (Twigs <2 cm D/branches/bark)	o	o
Fines and frass (<1mm)	o	o
Other biomass (lichen, moss etc)	o	o

o = optional, m = mandatory
m* mandatory only for the main tree species = *Fagus sylvatica*

(ICP Forests Manual, Part XIII, Sampling and Analysis of Litterfall, 2010)

Litterfall is a key parameter in the biogeochemical cycle linking the tree part to the water and soil part. Both the biomass of the litter and its chemical content are needed to quantify the annual return of elements and organic matter to the soil.

Effects of anthropogenic and natural factors, such as climate change, could influence both litterfall production and its seasonal progression. Processes like carbon cycling and carbon sequestration are closely related to stand leaf area index (LAI) and litterfall.

Changes in litterfall are responses to disturbances caused by biotic factors.

Litterfall production is a quantitative parameter of stand vitality and gives additional information to the visual assessment of canopy condition already observed in each plot.

Litterfall area of leaves is also one of the components of direct estimate of LAI.

Reference: ICP Forests Manual, Part XIII, Sampling and Analysis of Litterfall, 2010

Restraints:

- Time consuming fragmentation of the collected litterfall – expensive
- Potential damage to the samplers due to falling tree parts or heavy snow