



Legend MCSC-3v2 and MCSC-4 / SIOSE-2 Codification of the covers

Bellaterra (Cerdanyola del Vallès), 19/06/2013

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INTRODUCTION

This document presents the update of the legend of the Land Cover Map of Catalonia for the revised version of the MCSC-3 (MCSC-3v2) and the fourth edition (MCSC-4). Regarding the first version of the MCSC-3 (MCSC-3v1), there are additions, deletions and modifications in some categories. Even so, the hierarchical structure of the map is maintained, which allows comparisons between editions of the MCSC, and the adaptation to the legend of the project *Sistema de Información de la Ocupación del Suelo de España*, edition 2009 (SIOSE-2).

The legend of the MCSC has an own structure made by groupings of categories thematically similar (forests, crops, urban areas, ...) and allow a hierarchical structure by levels (1, 1 forest, 2, and 3 for the MCSC-2, 4 and 5 for MCSC-3 and MCSC-4), making it understandable and relatively easy to handle. However, the final adaptation and in depth to the legend of SIOSE makes that its handling is, apparently, more complicated at the time of the photointerpretation, or when performing operations with the fields that store the labels. The database fields that contain the polygons labels are:

- C_COMPOSTA: Code type of land cover composed.
- T_EDIFICI: Code type of building.
- C_SIMPLE: Code type of land cover simple.
- CÓNSTRUC: Code of cover in construction.

In order to facilitate its use, in this paper a description of its structure is done, and the categories are detailed with their corresponding labels in a similar way as is done in project SIOSE.

COVER TYPES

[Note: a part of this information is an adaptation of the document “Manual de fotointerpretación. Versión 1.2” from SIOSE which can be found in http://www.ign.es/siose/Documentacion/Guia_Tecnica_SIOSE/070322_Manual_Fotointerpretacion_SIOSE_v1_2.pdf (visited 19/06/2013)]

SIOSE details two major types of covers:

- Simple.
- Predefined Composed: These are groupings of simple categories.

There is a third type of cover, the Composed Covers (non-predefined). We are not going to explain it because, although a SIOSE photointerpretator, is required to digitize them, in the case of SIOSE in Catalonia, these are obtained by means of automatic processes of generalization of the MCSC-3 and MCSC-4.

Simple covers

They are:

- Crops
- Meadows and grasslands
- Forest woodland
- Shrublands
- Terrains without vegetation
- Artificial covers
- Wet covers
- Water covers

1. Herbaceous crops

The label of all herbaceous crops and almost all woody crops, begin with the letter **c**, except Carob Groves that are represented by the label **gar**.

Some crops may be in terraces, taking the suffix **b**.

Example of labelling:

Terraced Vineyards: **c + v + b = cvb**

1.1. Herbaceous crops

C_SIMPLE	NAME_MCSC3v2 MCSC4	and	NAME_SIOSE
ca	Rice crops		Rice
ch	Other herbaceous crops		Herbaceous crops different from rice
chr	Other herbaceous crops - irrigated		Herbaceous crops different from rice. Irrigated land - watered
ci	Greenhouses		Herbaceous crops different from rice. Forced cultivation
cii	Garden crops under plastic		

1.2. Herbaceous crops - terraced

As you can see below, only certain types of herbaceous crops can be found terraced.

C_SIMPLE	NAME_MCSC3v2 MCSC4	and	NAME_SIOSE
chb	Other herbaceous crops - terraced		Herbaceous crops different from rice. Crops on terraces or terraced
chbr	Other herbaceous crops - terraced - irrigated		Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - watered
cib	Greenhouses - terraced		Herbaceous crops different from rice. Forced cultivation. Crops on terraces or terraced

1.3. Woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cit	Citrus	Citrus
cl	Non-citric fruit trees	Non-citric fruit trees. Irrigated land - watered
gar	Carob groves	
clr	Non-citric fruit trees - irrigated	
garr	Carob groves - irrigated	
viva	Agricultural nurseries	
cv	Vineyards	Vineyards
co	Olive groves	Olive groves
cor	Olive groves - irrigated	Olive groves. Irrigated land - watered

1.4. Woody crops - terraced

All woody crops are likely to be found in terraces.

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
citb	Citrus - terraced	Citrus. Crops on terraces or terraced
clb	Non-citric fruit trees - terraced	Non-citric fruit trees. Crops on terraces or terraced
garb	Carob groves - terraced	
clbr	Non-citric fruit trees - terraced - irrigated	
cvb	Vineyards - terraced	Vineyards. Crops on terraces or terraced
cob	Olive groves - terraced	Olive groves. Crops on terraces or terraced
cobr	Olive groves - terraced - irrigated	Olive groves. Crops on terraces or terraced. Irrigated land - watered

1.5. Mowing meadows

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cd	Mowing meadows	Mowing meadows

1.6. Abandoned crops

Also some types of crops may be abandoned, all starting with the **e**. In the event that the present vegetation is a :

- grassland or meadow, follows the letter **p**
- high mountain grassland or meadow, follows the letters **pam**
- shrubland, follows the letter **m**
- forest, follows the letter **b**

1.6.1. Abandoned crops in forest areas, or with shrubs or trees

The label of abandoned crops – grasslands in forest areas, ends with f.

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
epf	Abandoned crops - grasslands in forest areas	Meadows. Provenance from crops
epamf	Abandoned crops - grasslands high mountain in forest areas	Meadows. High mountain. Provenance from crops
em	Abandoned crops - shrublands	Shrublands. Provenance from crops
eb	Abandoned crops - forests	

1.6.2. Abandoned herbaceous crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
eap	Abandoned rice crops - grasslands in agricultural areas	Herbaceous crops different from rice
ehp	Other abandoned herbaceous crops - grasslands in agricultural areas	
ehpr	Other abandoned herbaceous crops - irrigated non-watered - grasslands in agricultural areas	Herbaceous crops different from rice. Irrigated land - non-watered

1.6.3. Abandoned herbaceous crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ehpb	Other abandoned herbaceous crops - grasslands in agricultural areas - terraced	Herbaceous crops different from rice. Crops on terraces or terraced
ehpbr	Other abandoned herbaceous crops irrigated - non-watered - grasslands in agricultural areas - terraced	Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - non-watered

1.6.4. Abandoned woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitp	Abandoned citrus - grasslands in agricultural areas	Citrus
elp	Abandoned non-citric fruit trees - grasslands in agricultural areas	Non-citric fruit trees
elpr	Abandoned non-citric fruit trees - irrigated non-watered - grasslands in agricultural areas	Non-citric fruit trees. Irrigated land - non-watered
egarp	Abandoned carob groves - grasslands in agricultural areas	Non-citric fruit trees
evp	Abandoned vineyards - grasslands in agricultural areas	Vineyards
eop	Abandoned olive groves - grasslands in agricultural areas	Olive groves
eopr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas	Olive groves. Irrigated land - non-watered

1.6.5. Abandoned woody crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitpb	Abandoned citrus - grasslands in agricultural areas - terraced	Citrus. Crops on terraces or terraced
elpb	Abandoned non-citric fruit trees - grasslands in agricultural areas - terraced	Non-citric fruit trees. Crops on terraces or terraced
egarpb	Abandoned carob groves - grasslands in agricultural areas - terraced	
elpbr	Abandoned non-citric fruit trees - irrigated - non-watered - grasslands in agricultural areas - terraced	Non-citric fruit trees. Crops on terraces or terraced. Irrigated land - non-watered
evpb	Abandoned vineyards - grasslands in agricultural areas - terraced	Vineyards. Crops on terraces or terraced
eopb	Abandoned olive groves - grasslands in agricultural areas - terraced	Olive groves. Crops on terraces or terraced
eopbr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas - terraced	Olive groves. Crops on terraces or terraced. Irrigated land - non-watered

1.6.6. Abandoned mowing meadows

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
edp	Abandoned mowing meadows - grasslands in agricultural areas	Mowing meadows
edpam	Abandoned mowing meadows - high mountain grasslands in agricultural areas	

2. Meadows and grasslands

The meadows and grasslands begin with letter **p**. Possible attributes, as suffixes:

- Herbaceous vegetation of dunes and sands: **dun**
- High mountain: **am**
- In firewall: **f**
- Coming from clearcutting: **t**

Example of labelling:

High mountain meadows and grasslands coming from clearcutting: **p + am + t = pant**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
p	Meadows and grasslands	Meadows
pel	Meadows and grasslands under electric lines	
pfp	Buffer strip of meadows and grasslands	
pdun	Herbaceous vegetation of dunes and sands	Meadows. High mountain
pam	High mountain meadows and grasslands	
pamel	High mountain meadows and grasslands under electric lines	Meadows. Firewall function
pf	Meadows and grasslands in firewalls	
pt	Meadows and grasslands coming from clearcutting	Meadows. Clearcutting
pamt	High mountain meadows and grasslands coming from clearcutting	Meadows. High mountain. Clearcutting

3. Forest woodland

Almost all the labels in this category begin with letter **b**, except for three, that begin with **p**: Non-native conifer plantations (**pcon**), Poplar plantations (**ppo**), and Plane tree plantations (**ppl**)

3.1. Forests

They present the following degrees of coverage:

- $\geq 20\%$ cc: suffix **20**
- 5-20%cc: suffix **5**

The species are represented by two letters, often the initials of the genus and the specie (eg.: stone pine, is **pp**)

Example of labelling:

Mountain pine forest (*Pinus uncinata*), with a coverage $\geq 20\%$: **b + pu + 20 = bpu20**

Evergreen oak forest (*Quercus ilex*), with a coverage 5-20%: **b + qi + 5 = bqi5**

The following table is valid for both types of coverage, which simply must add **5** or **20** depending on the estimated percentage of coverage.

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bpp	Stone pine forest	Conifers
bpm	Maritime pine forest	
bph	Aleppo pine forest	
bpn	Austrian pine forest	
bps	Scots pine forest	
bpu	Mountain pine forest	
baa	Silver fir forest	
bcon	Other conifers	
bqi	Evergreen oak forest	Evergreens
bqs	Cork oak forest	
barb	Strawberry tree forest	
bap	Other evergreens	
bbp	Silver birch forest	Deciduous trees
bcs	Spanish chestnut forest	
bfs	European beech forest	
bqr	Pedunculate oak forest	
bqp	Sessile oak forest	
bqc	Algerian oak forest	
bqh	Pubescent oak forest	
bqf	Portuguese oak forest	
bqpy	Pyrenean oak forest	
bca	Common hazel forest	
bfe	Common ash forest	
bcad	Other deciduous trees	

3.2. Riparian forests

They present the following degrees of coverage:

- $\geq 20\%$ cc: suffix **20**
- 5-20%cc: suffix **5**

Example of labelling:

Deciduous riparian forests with coverage $\geq 20\%$: **b + rib + c +20 = bribc20**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bribc	Deciduous riparian forests	Deciduous trees. Riparian vegetation

3.3. Buffer strips

Almost all species that the MCSC-3 and 4 distinguishes in the forests, are included in the group of buffer strips. To represent them, in the label forest must add the suffix **f**.

Example of labelling:

Buffer strip of Austrian pine (*Pinus nigra*): **b + pn + f = bpnf**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bppf	Buffer strip of stone pine	Conifers
bpmf	Buffer strip of maritime pine	
bphf	Buffer strip of Aleppo pine	
bpnf	Buffer strip of Austrian pine	
bpsf	Buffer strip of Scots pine	
bqjf	Buffer strip of evergreen oak	Evergreens
bqsf	Buffer strip of cork oak	
bcsf	Buffer strip of Spanish chestnut	Deciduous trees
bfsf	Buffer strip of European beech	
bqrf	Buffer strip of pedunculate oak	
bqpf	Buffer strip of sessile oak	
bqcf	Buffer strip of Algerian oak	
bqhf	Buffer strip of pubescent oak	
bqff	Buffer strip of Portuguese oak	
bcadf	Buffer strip of other deciduous trees	

3.4. Plantations

Many of the species of the trees that distinguishes the MCSC-3 and 4 may occur in plantations. In this case add the suffix **p**, except for the eucalyptus, the poplars, and the plane trees which have another nomenclature, these three starting with the letter **p**. There is no reference to the coverage of foliage. Example of labelling:

Plantations of Scots pine (*Pinus sylvestris*): **b + ps + p = bpsp**

Plantations of poplars: **p + po = ppo**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bppp	Stone pine plantations	Conifers. Plantation
bpmp	Maritime pine plantations	
bphp	Aleppo pine plantations	
bnp	Austrian pine plantations	
bpsp	Scots pine plantations	
bpup	Mountain pine plantations	
baap	Silver fir plantations	
vivef	Forest nurseries	
pcon	Non-native conifer plantations	
bqsp	Cork oak plantations	Evergreens. Plantation
bcsp	Spanish chestnut plantations	
bcadp	Other deciduous trees plantations	Deciduous trees. Plantation
peu	Eucalyptus plantations	
ppo	Poplars plantations	
ppl	Plane trees plantations	

3.5. Forest woodland regeneration

The few species that the MCSC-3 and 4 contemplates that regenerate, have the suffix **r**.

Example of labelling:

Portuguese oak (*Quercus faginea*) regeneration: **b + qf + r = bqfr**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bpmr	Maritime pine regeneration	Conifers
bphr	Aleppo pine regeneration	
bpnr	Austrian pine regeneration	
bpsr	Scots pine regeneration	
bpur	Mountain pine regeneration	
baar	Silver fir regeneration	Evergreens
bqir	Evergreen oak regeneration	
bqhr	Pubescent oak regeneration	Deciduous trees
bqfr	Portuguese oak regeneration	
bfsr	European beech regeneration	
bbpr	Silver birch regeneration	

4. Shrublands

The shrublands begins with the letter **m**. Possible attributes, as a suffix:

- Shrub vegetation of dunes and sandy areas: **dun**
- Riparian: **r**
- In firewalls: **f**
- Coming from clearcutting: **t**

Example of labelling:

Shrublands in firewalls: **m + f = mf**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
m	Shrublands	Shrublands
mel	Shrublands under electric lines	
mfp	Buffer strip of shrublands	
mdun	Shrub vegetation of dunes and sandy areas	
mr	Shrublands in riparian vegetation	Shrublands. Riparian vegetation
canya	Reed beds	
mf	Shrublands in firewalls	Shrublands. Firewall function
mt	Shrublands coming from clearcutting	Shrublands. Clearcutting

5. Terrains without vegetation

The only remarkable regularity in the labelling is that all bare soils begin by the letter **n**.

Example of labelling:

Eroded soil by natural agents: **n + n = nn**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ib	Burned areas	Burned areas
rm	Sea cliffs	Sea cliffs
r	Rocky outcrops	Rocky outcrops
t	Screes	Screes
nl	Natural riverbeds	Natural riverbeds
nnt	Bare soil in firewalls	Bare soil. Firewalls
nn	Eroded soil by natural agents	Bare soil. Eroded areas
nna	Bare soil by anthropic action	
nnael	Bare soil under electric lines	
nc	Crops under transformation	
ra	Agricultural breaking up	
na	Non-built urban bare soils	Non-built soils
nac	Urban areas under construction	
l	Beaches	Beaches, dunes and sandy areas
y	Glaciers and snowdrifts	Glaciers and permanent snow

6. Artificial covers

These covers are only possible for themselves as if they are in urban environment.

Ponds begin with the letter **w**.

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
wb	Agricultural ponds	Artificial water sheet
wu	Urban ponds	
dip	Other constructions	Other constructions
pkc	Big avenues	Big avenues, parking or pedestrian area without vegetation
tgv	Earthworks	Mining extractive or dumps

7. Wet covers

The categories that are strictly vegetal, begin with the letter **g**.

Example of labelling:

High mountain peat bogs: **g + a = ga**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
gl	Coastal wetlands vegetation	Coastal wetlands
gm	Inland wetlands vegetation	Inland wetlands
ga	High mountain peat bogs	Peat bogs
ds	Salt works	Salt works

8. Water covers

Except of the Sea all categories begin with **w**.

Example of labelling:

Lakes and inland lagoons: **w + c = wc**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
wc	Lakes and inland lagoons	Lakes and lagoons
wl	Coastal lagoons	Coastal lagoons
wr	Rivers	Water courses
we	Reservoirs	Reservoirs
mar	Sea	Seas and oceans

Predefined composed covers

Unlike the simple and pure covers, composed covers are the union or mixture of different simple categories with a common link. The predefined composed covers are a group of fixed combinations of the simple covers which respond to more or less urban figures or entities, such as the Market and kitchen gardens or the City expansion. In turn, these simple covers only contain some of the indivisible categories which they are constituted, because not all the cases are possible. Any other cover may not be included in this group.

The labelling of such covers is made by putting the label corresponding to the first composed category, and then that of the simple category in question.

There are three large predefined composed covers:

- Market and kitchen garden
- Residential agricultural settlement
- Composed artificial

1. Market and kitchen garden

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hf	Market and kitchen garden	Market and kitchen garden

The Market and kitchen garden can consist of up to five groups SIOSE simple categories (seven if we made the breakdown in this document). The categories of possible crops are understood as being of irrigated land, in this case; however the labels of dry land crops are tolerated, although afterwards, are considered to be of irrigated land. The indivisible categories can be found below the column NAME_SIOSE, with their correspondences MCSC-3v2 and 4 in the column NAME_MCSC3v2 and MCSC4:

- Herbaceous crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
chr	Other herbaceous crops - irrigated	Herbaceous crops different from rice. Irrigated land - watered
ci	Greenhouses	Herbaceous crops different from rice. Forced cultivation
cii	Garden crops under plastic	

- Abandoned herbaceous crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ehpr	Other abandoned herbaceous crops - irrigated - non-watered - grasslands in agricultural areas	Herbaceous crops different from rice. Irrigated land - non-watered

- Herbaceous crops terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
chbr	Other herbaceous crops - terraced - irrigated	Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - watered
cib	Greenhouses - terraced	Herbaceous crops different from rice. Forced cultivation. Crops on terraces or terraced

- Abandoned herbaceous crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ehpbr	Other abandoned herbaceous crops - irrigated - non-watered - grasslands in agricultural areas - terraced	Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - non-watered

- Woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cit	Citrus	Citrus
clr	Non-citric fruit trees - irrigated	Non-citric fruit trees. Irrigated land - watered
cv	Vineyards	Vineyards
cor	Olive groves - irrigated	Olive groves. Irrigated land - watered
garr	Carob groves - irrigated	Non-citric fruit trees. Irrigated land - watered

- Abandoned woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitp	Abandoned citrus - grasslands in agricultural areas	Citrus
elpr	Abandoned non-citric fruit trees - irrigated - non-watered - grasslands in agricultural areas	Non-citric fruit trees. Irrigated land - non-watered
egarp	Abandoned carob groves - grasslands in agricultural areas	Non-citric fruit trees.
evp	Abandoned vineyards - grasslands in agricultural areas	Vineyards
eopr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas	Olive groves. Irrigated land - non-watered

- Woody crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
citb	Citrus - terraced	Citrus. Crops on terraces or terraced
clbr	Non-citric fruit trees - terraced - irrigated	Non-citric fruit trees. Crops on terraces or terraced. Irrigated land - watered
cvb	Vineyards - terraced	Vineyards. Crops on terraces or terraced
cobr	Olive groves - terraced - irrigated	Olive groves. Crops on terraces or terraced. Irrigated land - watered
garb	Carob groves - terraced	Non-citric fruit trees. Crops on terraces or terraced

- Abandoned woody crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitpb	Abandoned citrus - grasslands in agricultural areas - terraced	Citrus. Crops on terraces or terraced
elpbr	Abandoned non-citric fruit trees - irrigated non-watered - grasslands in agricultural areas - terraced	Non-citric fruit trees. Crops on terraces or terraced. Irrigated land - non-watered
egarpb	Abandoned carob groves - grasslands in agricultural areas terraced	
evpb	Abandoned vineyards - grasslands in agricultural areas - terraced	Vineyards. Crops on terraces or terraced
eopbr	Abandoned olive groves irrigated - non-watered - grasslands in agricultural areas - terraced	Olive groves. Crops on terraces or terraced. Irrigated land - non-watered

- Forest woodlands

- Forests

They present the following degrees of coverage:

- $\geq 20\%$ cc: suffix **20**
- 5-20%cc: suffix **5**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bpp	Stone pine forest	Conifers
bph	Aleppo pine forest	
bpn	Austrian pine forest	
bqi	Evergreen oak forest	Evergreens
bqs	Cork oak forest	
bqh	Pubescent oak forest	Deciduous trees
bca	Common hazel forest	
bfre	Common ash forest	
bcad	Other deciduous trees	

- Plantations

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bppp	Stone pine plantations	Conifers. Plantation
bphp	Aleppo pine plantations	
bnp	Austrian pine plantations	
ppo	Poplar plantations	Deciduous trees. Plantation
ppl	Plane trees plantations	

- Buildings

T_EDIFICI	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family home	Single family home. Isolated

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family homes	Building

- Artificial water sheet

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
wb	Agricultural ponds	Artificial water sheet
wu	Urban ponds	

2. Residential agricultural settlement

C_COMPÒSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hr	Residential agricultural settlement	Residential agricultural settlement

The residential agricultural settlement may be made up to seven groups of SIOSE simple categories (eight, if we follow the classification made in this document). The indivisible categories can be found below the column NAME_SIOSE with their correspondences MCSC-3v2 and 4 in column NAME_MCSC3v2 and MCSC4:

- Abandoned crops in forest areas, with shrublands or with forests

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
em	Abandoned crops - shrublands	Shrublands. Provenance from crops
eb	Abandoned crops - forests	

- Herbaceous crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ch	Other herbaceous crops	Herbaceous crops different from rice
chr	Other herbaceous crops - irrigated	Herbaceous crops different from rice. Irrigated land - watered
ci	Greenhouses	
cii	Garden crops under plastic	

- Abandoned herbaceous crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ehp	Other abandoned herbaceous crops - grasslands in agricultural areas	Herbaceous crops different from rice
ehpr	Other abandoned herbaceous crops - irrigated - non-watered - grasslands in agricultural areas	Herbaceous crops different from rice. Irrigated land - non-watered

- Herbaceous crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
chb	Other herbaceous crops - terraced	Herbaceous crops different from rice. Crops on terraces or terraced
chbr	Other herbaceous crops - terraced - irrigated	Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - watered
cib	Greenhouses - terraced	Herbaceous crops different from rice. Forced cultivation. Crops on terraces or terraced

- Abandoned herbaceous crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ehpb	Other abandoned herbaceous crops - grasslands in agricultural areas - terraced	Herbaceous crops different from rice. Crops on terraces or terraced
ehpbr	Other abandoned herbaceous crops - irrigated - non-watered - grasslands in agricultural areas - terraced	Herbaceous crops different from rice. Crops on terraces or terraced. Irrigated land - non-watered

- Woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cit	Citrus	Citrus
cl	Non-citric fruit trees	Non-citric fruit trees
gar	Carob groves	
cv	Vineyards	Vineyards
co	Olive groves	Olive groves
clr	Non-citric fruit trees - irrigated	Non-citric fruit trees. Irrigated land - watered
garr	Carob groves - irrigated	
cor	Olive groves - irrigated	Olive groves. Irrigated land - watered

- Abandoned woody crops

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitp	Abandoned citrus - grasslands in agricultural areas	Citrus
elp	Abandoned non-citric fruit trees - grasslands in agricultural areas	Non-citric fruit trees
egarp	Abandoned carob groves - grasslands in agricultural areas	
evp	Abandoned vineyards - grasslands in agricultural areas	Vineyards
eop	Abandoned olive groves - grasslands in agricultural areas	Olive groves
elpr	Abandoned non-citric fruit trees - irrigated - non-watered - grasslands in agricultural areas	Non-citric fruit trees. Irrigated land - non-watered
eopr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas	Olive groves. Irrigated land - non-watered

- Woody crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
citb	Citrus - terraced	Citrus. Crops on terraces or terraced
clb	Non-citric fruit trees - terraced	Non-citric fruit trees. Crops on terraces or terraced
garb	Carob groves - terraced	
cvb	Vineyards - terraced	Vineyards. Crops on terraces or terraced
cob	Olive groves - terraced	Olive groves. Crops on terraces or terraced
clbr	Non-citric fruit trees - terraced - irrigated	Non-citric fruit trees. Crops on terraces or terraced. Irrigated land - watered
cobr	Olive groves - terraced - irrigated	Olive groves. Crops on terraces or terraced. Irrigated land - watered

- Abandoned woody crops - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ecitpb	Abandoned citrus - grasslands in agricultural areas - terraced	Citrus. Crops on terraces or terraced
elpb	Abandoned non-citric fruit trees - grasslands in agricultural areas - terraced	Non-citric fruit trees. Crops on terraces or terraced
egarpb	Abandoned carob groves - grasslands in agricultural areas - terraced	
evpb	Abandoned vineyards - grasslands in agricultural areas - terraced	Vineyards. Crops on terraces or terraced
eopb	Abandoned olive groves - grasslands in agricultural areas - terraced	Olive groves. Crops on terraces or terraced
elpbr	Abandoned non-citric fruit trees - irrigated - non-watered - grasslands in agricultural areas - terraced	Non-citric fruit trees. Crops on terraces or terraced. Irrigated land - non-watered
eopbr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas - terraced	Olive groves. Crops on terraces or terraced. Irrigated land - non-watered

- Mowing meadows

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cd	Mowing meadows	Mowing meadows

- Abandoned mowing meadows

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
edp	Abandoned mowing meadows - grasslands in agricultural areas	Mowing meadows
edpam	Abandoned mowing meadows - grasslands high mountain in agricultural areas	

- Mowing meadows - terraced

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cdb	Mowing meadows - terraced	Mowing meadows. Crops on terraces or terraced

- Forest woodland

- Forests

They present the following degrees of coverage:

- $\geq 20\%$ cc: suffix **20**
- 5-20%cc: suffix **5**

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bpp	Stone pine forest	Conifers
bph	Aleppo pine forest	
bpn	Austrian pine forest	
bps	Scots pine forest	
bqi	Evergreen oak forest	Evergreens
bqs	Cork oak forest	
bqh	Pubescent oak forest	Deciduous trees
bca	Common hazel forest	
bfre	Common ash forest	
bcad	Other deciduous trees	

- Plantations

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
bppp	Stone pine plantations	Conifers. Plantation
bphp	Aleppo pine plantations	
bpnp	Austrian pine plantations	
ppo	Poplar plantations	Deciduous trees. Plantation
ppl	Plane tree plantations	

- Shrublands

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
m	Shrublands	Shrublands
mdun	Shrub vegetation of dunes and sandy areas	
mr	Shrublands in riparian vegetation	Shrublands. Riparian vegetation
canya	Reed beds	
mf	Shrublands in firewalls	Shrublands. Firewall function
mt	Shrublands coming from clearcutting	Shrublands. Clearcutting

- Buildings

T_EDIFICI	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family home	Single family home. Isolated

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family homes	Building

- Artificial water sheet

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
wb	Agricultural ponds	Artificial water sheet
wu	Urban ponds	

3. Composed Artificial

The labelling of such covers is similar to that in previous cases, that is, putting in front the label corresponding to the composed category, then the corresponding to simple category in question, but adding another one indicating whether the Composed Artificial is under construction. There are, however, some exceptions which corresponds to the Mixed Urban (except for the Isolated Houses), Commercial and Office Complexes and the Hotel Complexes; In these cases, as there are different buildings typologies, comes in another field: T_EDIFICI, which will be written between the composed category and the simple category.

All categories of Composed Artificial may be formed for up to seven groups of SIOSE simple categories, which can be found below the column NAME_SIOSE, with their correspondences MCSC-3 and 4 in the column NAME_MCSC3v2 and MCSC4:

T_EDIFICI	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family house	Single family home. Isolated
had	Terraced single family house	Single family home. Terraced
eai	Detached buildings	Detached buildings
eme	Buildings between party walls	Buildings between party walls
nau	Large construction with only one level, used as a factory or warehouse	Large construction with only one level, used as a factory or warehouse

C_SIMPLE	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
hua	Isolated single family houses	Building
had	Terraced single family houses	
eai	Detached buildings	
eme	Buildings between party walls	
nau	Industrial building form	
zu	Artificial urban green areas	Artificial green area and urban woodland.
zua	Urban forest	
dip	Other constructions	Other constructions
bpp20	Stone pine forest (>= 20%cc)	Non-built soil
bpm20	Maritime pine forest (>= 20%cc)	
bph20	Aleppo pine forest (>= 20%cc)	
bpn20	Austrian pine forest (>= 20%cc)	
bps20	Scots pine forest (>= 20%cc)	
bcon20	Other conifers (>=20%cc)	
bqi20	Evergreen oak forest (>= 20%cc)	
bqs20	Cork oak forest (>= 20%cc)	
barb20	Strawberry tree forest (>= 20%cc)	
bqh20	Pubescent oak forest (>= 20%cc)	
bcad20	Other deciduous trees (>= 20%cc)	
bpp5	Stone pine forest (5-20%cc)	
bpm5	Maritime pine forest (5-20%cc)	
bph5	Aleppo pine forest (5-20%cc)	
bpn5	Austrian pine forest (5-20%cc)	
bps5	Scots pine forest (5-20%cc)	
bcon5	Other conifers (5-20%cc)	
bqi5	Evergreen oak forest (5-20%cc)	
bqs5	Cork oak forest (5-20%cc)	
barb5	Strawberry tree forest (5-20%cc)	
bqh5	Pubescent oak forest (5-20%cc)	
bcad5	Other deciduous trees (5-20%cc)	
bphp	Aleppo pine plantations	
bphr	Aleppo pine regeneration	
bqjr	Evergreen oak regeneration	
bqhr	Pubescent oak regeneration	
m	Shrublands	
mt	Shrublands coming from clearcutting	
p	Meadows and grasslands	
pam	High mountain meadows and grasslands	
pt	Meadows and grasslands coming from clearcutting	
pamt	High mountain meadows and grasslands coming from clearcutting	
cit	Citrus	
cl	Non-citric fruit trees	
clr	Non-citric fruit trees - irrigated	
cv	Vineyards	
co	Olive groves	
cor	Olive groves - irrigated	
gar	Carob groves	
garr	Carob groves - irrigated	

ch	Other herbaceous crops	
chr	Other herbaceous crops - irrigated	
ci	Greenhouses	
cii	Garden crops under plastic	
ehp	Other abandoned herbaceous crops - grasslands in agricultural areas	
ehpr	Other herbaceous crops - irrigated - non-watered - grasslands in agricultural areas	
ecitp	Abandoned citrus - grasslands in agricultural areas	
elp	Non-citric fruit trees - grasslands in agricultural areas	
elpr	Abandoned non-citric fruit trees - irrigated - non-watered - grasslands in agricultural areas	
egarp	Abandoned carob groves - grasslands in agricultural areas	
evp	Abandoned vineyards - grasslands in agricultural areas	
eop	Abandoned olive groves - grasslands in agricultural areas	
eopr	Abandoned olive groves - irrigated - non-watered - grasslands in agricultural areas	
em	Abandoned crops - shrublands	
nn	Eroded soil by natural agents	
nna	Bare soil by anthropic action	
na	Non-built urban bare soils	
r	Rocky outcrops	
da	Dumps	Mining extractive or dumps
nac	Urban areas under construction	
tgw	Earthworks	
wb	Agricultural ponds	Artificial water sheet
wc	Lakes and inland lagoons	
mar	Sea	
wu	Urban ponds	
pkc	Big avenues	Big avenues, parking or pedestrian area without vegetation
pk	Parking areas	
pkv	Pedestrian areas without vegetation	

The attribute which indicates that the Composed Artificial is in construction or not is reflected in the following table:

CONSTRUC	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
c	Under construction	Under construction
a	Not under construction	Not under construction

The categories of Composed Artificial are:

- Mixed Urban
- Primary
- Industrial
- Tertiary
- Equipment / Community Services
- Infrastructures

1.1. Mixed Urban

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ulu	Residential area	Detached
uls	Isolated houses	
ula	Colonies and isolated urban cores	
ucc	City centre	City centre
uce	City expansion	City expansion
uln	Single family houses	

1.2. Primary

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cg	Farms	Agricultural / Livestock
naua	Warehouses for agricultural use	
cs	Sawmills	Forestry
dm	Mining extraction areas	Mining extractive
cp	Mainland fish farms and aquacultural crops	Fish farms
cm	Fish farms and aquacultural crops into the sea	

1.3. Industrial

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
uip	Industrial polygon - ordered	Industrial polygon ordered
uin	Industrial polygon - unordered	Industrial polygon unordered
uia	Isolated industries	Isolated industries

1.4. Tertiary

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
cc	Commercial and office complexes	Commercial and office
vive	Plant nurseries	
pr	Recreational parks	Recreational park
hot	Hotel complexes	Hotel complexes
sc	Campsites	Campsite

1.5. Equipment / Community Services

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
adm	Administrative complexes	Institutional administrative
es	Health facilities	Sanitary
um	Cemeteries	Cemeteries
ee	Educational facilities	Education
pres	Prisons	Penitentiary
deu	Religious centres	Religious
cul	Cultural centres	Cultural
ss	Sport areas	Sport
sg	Golf courses	Golf course
uv	Urban parks	Urban parks

1.6. Infrastructures

1.6.1. Transport

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ka	Motorways and dual carriageways	Road network
kc	Roads	
kg	Road green areas	
bus	Bus stations	
gas	Areas of service in road network	
kt	Railroad tracks	Railroad network
ktg	Railroad green areas	
kp	Port areas	Port
kv	Airports	Airport

1.6.2. Energy

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
ce	Wind power plants	Wind energy
sol	Solar power plants	Solar energy
wp	Dams	Hydroelectric
cn	Nuclear power plants	Nuclear energy
ct	Thermal power plants	Thermal energy
ie	Electrical infrastructures	Electric energy

1.6.3. Water supplies

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
dep	Sewage treatment and water purification plants	Sewage treatment and water purification plants
des	Desalination plants	Desalination plants
wa	Artificial channels	Pipes and channels

1.6.4. Telecommunications

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
tel	Telecommunications	Telecommunications

1.6.5. Residues

C_COMPOSTA	NAME_MCSC3v2 and MCSC4	NAME_SIOSE
da	Dumps	Landfills and slag heaps
ptr	Treatment plants	Treatment plants