



Support for the implementation of the ENI-SEIS II East 2017-2018 Regional and National Work Plan in assisting reporting to the Emerald network

Guidance for converting the national distribution data to the Pan-European 10x10km Grid

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Introduction

- The Resolution 8(2012) reporting format requests countries to deliver distribution data at national level under paragraphs:
 - Annex B - 2.3 : for species
 - Annex D – 2.3 : for habitats
 - Annex F – 4.3 : breeding distribution for Birds
- the Group of Experts of Protected Areas under the Bern Convention specifically requested to develop guidelines for converting national distribution data towards the Pan-European 10x10km grid.
- for Art. 17 and Art. 12 reporting under the EU Nature Directives, no specific guidelines were written.

Annex B: Reporting format for species, except birds

2. Maps	
Distribution of the species within the country concerned	
2.1. Sensitive species	The information provided relates to a species (or subspecies) to be treated as 'sensitive' YES/NO
2.2. Year or period	Year or period when distribution data was collected
2.3. Distribution map	Submit a map together with relevant metadata following the technical specifications in the Explanatory Notes and Guidelines. The standard for species distribution is 10x10km ETRS grid cells, projection ETRS LAEA 5210
2.4. Method used	Select from the following methods: 3 = Complete survey or a statistically robust estimate 2 = Based mainly on extrapolation from a limited amount of data 1 = Based mainly on expert opinion with very limited data 0 = Insufficient or no data available
2.5 Additional map Optional	Country can submit an additional map, deviating from standard submission map under 2.3. and/or a range map

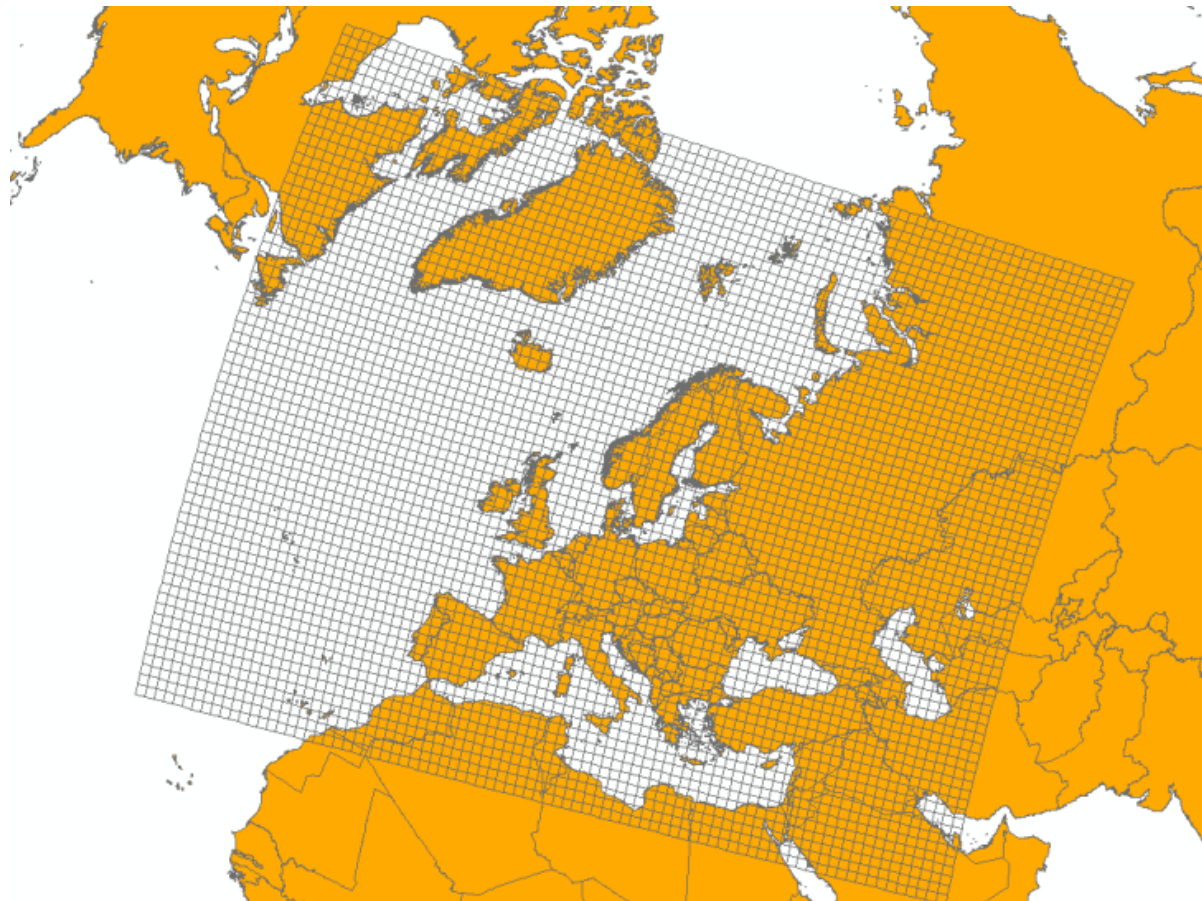
Annex D: Reporting format for habitat types

2. Maps	
Distribution of the habitat type within the country concerned	
2.1 Year or period	<i>Year or period when distribution data was collected</i>
2.2 Distribution map	<i>Submit a map together with relevant metadata following the technical specifications in the Explanatory Notes and Guidelines. The standard for habitat distribution is 10x10km ETRS grid cells, projection ETRS LAEA 5210</i>
2.3 Method used	<i>Select one of the following methods:</i> <i>a) Complete survey or a statistically robust estimate</i> <i>b) Based mainly on extrapolation from a limited amount of data</i> <i>c) Based mainly on expert opinion with very limited data</i> <i>d) Insufficient or no data available</i>
2.4 Additional maps <i>Optional</i>	<i>The country can submit an additional map, deviating from standard submission map under 2.2 and/or a range map</i>

Annex F: Birds: Breeding distribution map and size

4 Breeding distribution map and size	
4.1 Sensitive species	<i>The information provided relates to a species (or subspecific population) to be treated as 'sensitive' YES/NO</i>
4.2 Year or period	<i>Year or period when the breeding distribution data was collected</i>
4.3 Breeding distribution map	<i>Submit a map together with relevant metadata following the technical specifications in the Reporting guidelines. The standard for species distribution is the 10x10km ETRS grid cells, projection ETRS LAEA 5210</i>
4.4 Breeding distribution surface area	<i>Total surface area of the breeding distribution in km²</i>
4.5 Breeding distribution Method used	<i>Select one of the following methods:</i> <i>a) Complete survey or a statistically robust estimate</i> <i>b) Based mainly on extrapolation from a limited amount of data</i> <i>c) Based mainly on expert opinion with very limited data</i> <i>d) Insufficient or no data available</i>
4.6 Additional maps	<i>Countries can submit an additional map, deviating from the standard submission under field 4.3. and/or a range map</i> <i>Optional</i>
4.7 Sources	<i>Give bibliographic references, link to Internet sites, expert contact details, etc.</i> <i>Free text</i>
4.8 Additional information	<i>Other relevant information, complementary to the data requested under fields 4.1–4.7</i> <i>Optional</i> <i>Free text</i>

EEA reference grid in the new projection (continental view)



Possible formats for any distribution data at any geographical scale

- Geographical Points
- Lines: e.g. transects, river sections etc ...
- Polygons
- Grids of various scales and sizes:
 - Original grid $< 10 \times 10 \text{ km}$
 - Original grid $> 10 \times 10 \text{ km}$

Example distribution maps: Georgia

The screenshot displays a GIS application window titled "*points-GE-Pelecanus crispus.WOR - MapInfo Pro". The interface includes a menu bar with options like PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, and LABELS. A toolbar at the top contains icons for various map functions. The Explorer panel on the left shows a tree view with the following layers:

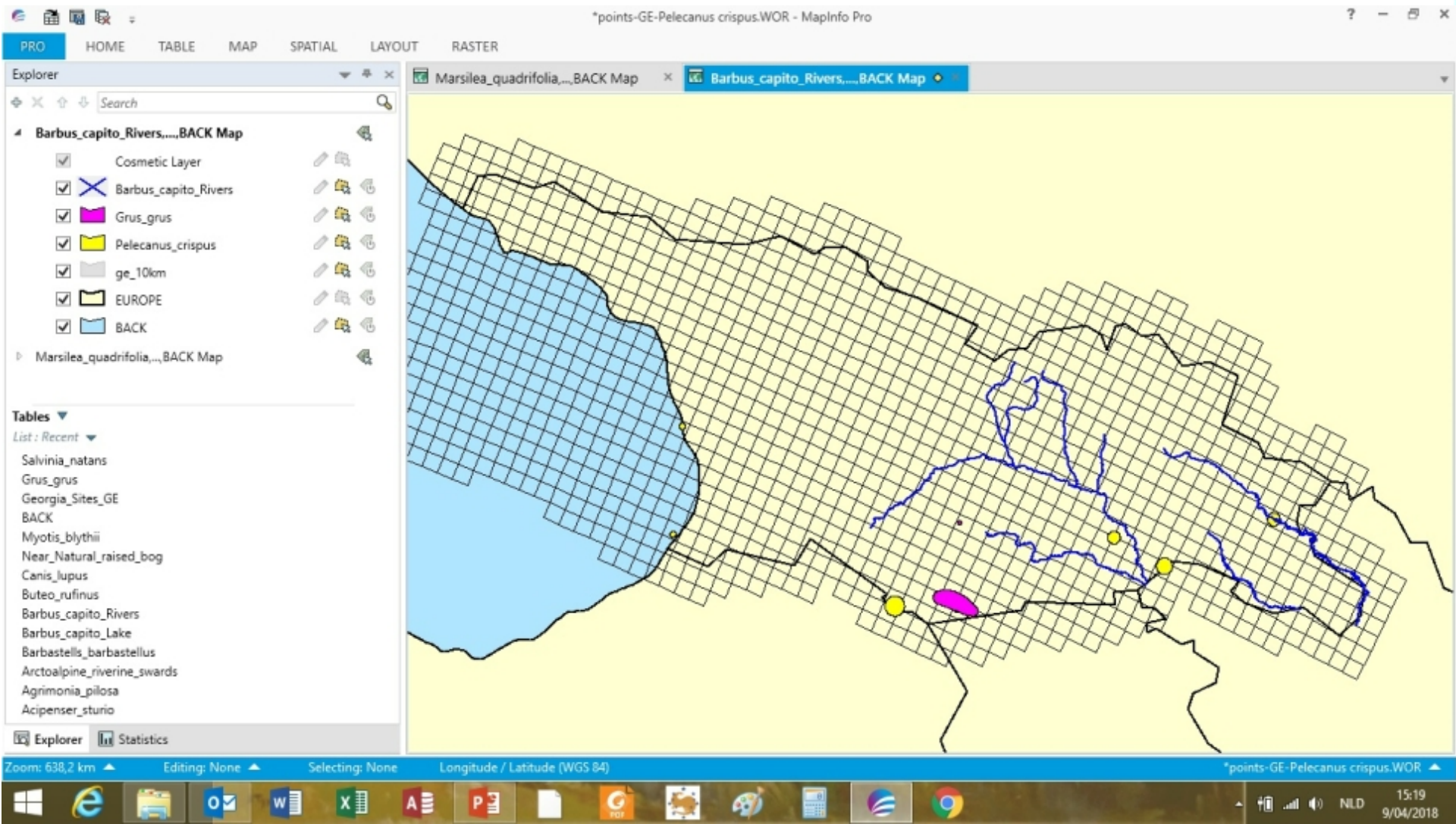
- ge_10km,....BACK Map
 - Cosmetic Layer
 - ge_10km
 - Barbus_capito_Rivers
 - Grus_grus
 - Pelecanus_crispus
 - EUROPE
 - BACK
- Marsilea_quadrifolia,....BACK Map

Below the Explorer panel, there is a "Tables" section with a "List : Recent" dropdown menu containing the following entries:

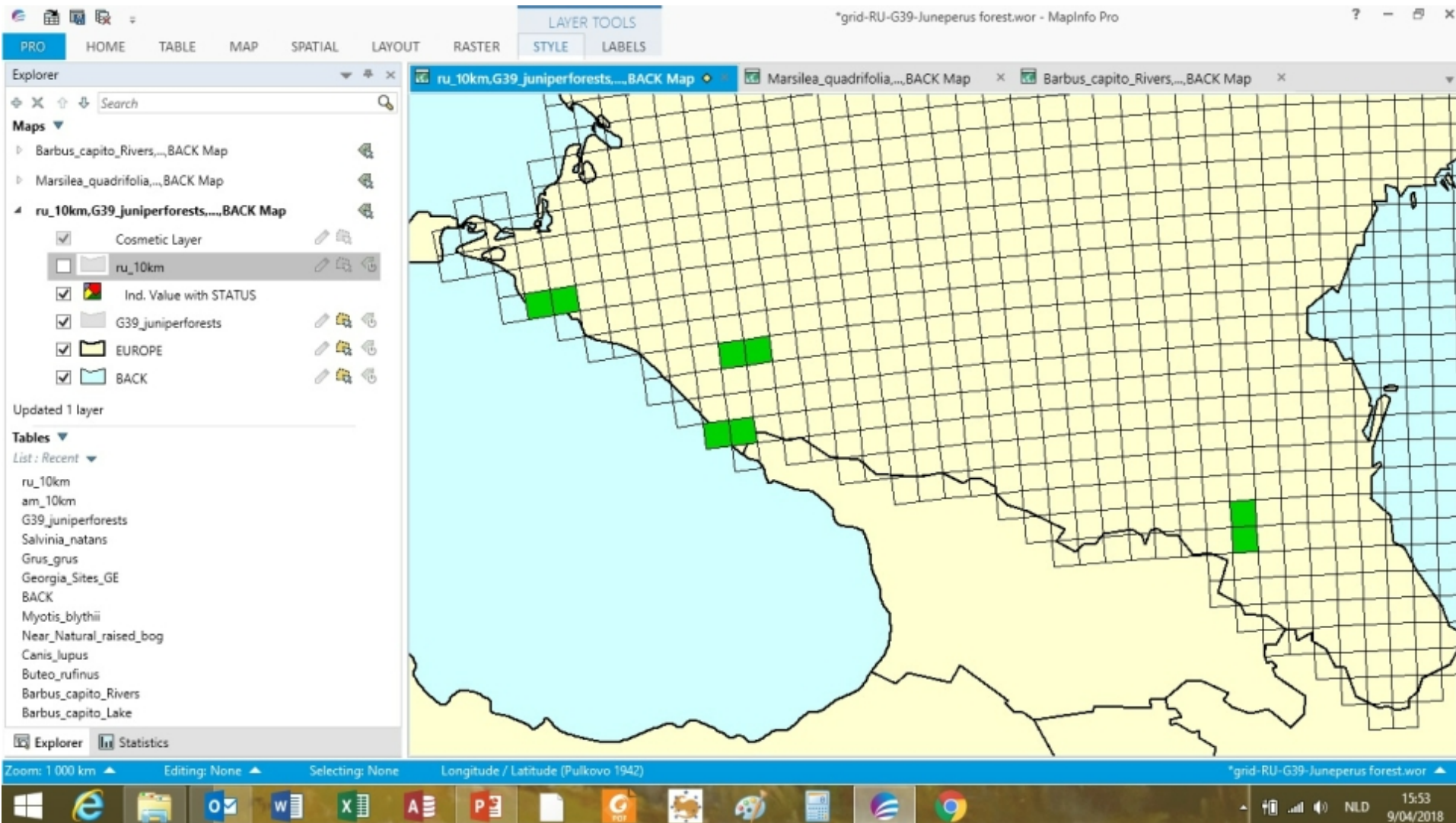
- Salvinia_natans
- Grus_grus
- Georgia_Sites_GE
- BACK
- Myotis_blythii
- Near_Natural_raised_bog
- Canis_lupus
- Buteo_rufinus
- Barbus_capito_Rivers
- Barbus_capito_Lake
- Barbastells_barbastellus
- Arctoalpine_riverine_swards
- Agrimonia_pilosa
- Acipenser_sturio

The main map area shows a geographical distribution map of Georgia. It features a network of blue lines representing rivers, a black outline for the coastline, and several yellow circular markers indicating specific sites. A pink polygon highlights a specific area on the map. The status bar at the bottom of the application window displays "Zoom: 636,5 km", "Editing: None", and "Longitude / Latitude (WGS 84)". The Windows taskbar at the very bottom shows various application icons and the system clock displaying "22:09 9/04/2018".

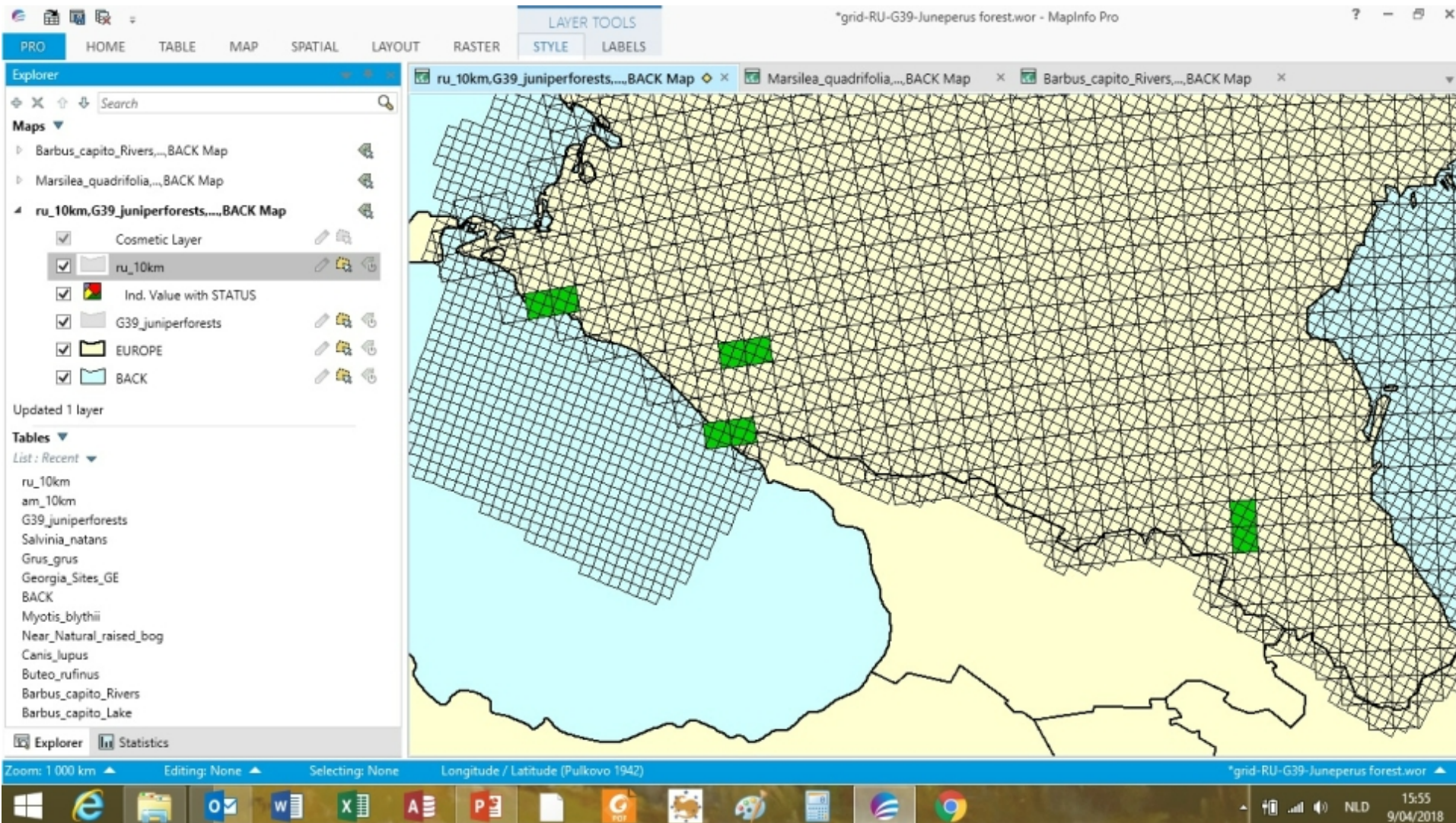
Example distribution maps: Georgia



Example map: Russia habitat G3.9 Juniperus forests



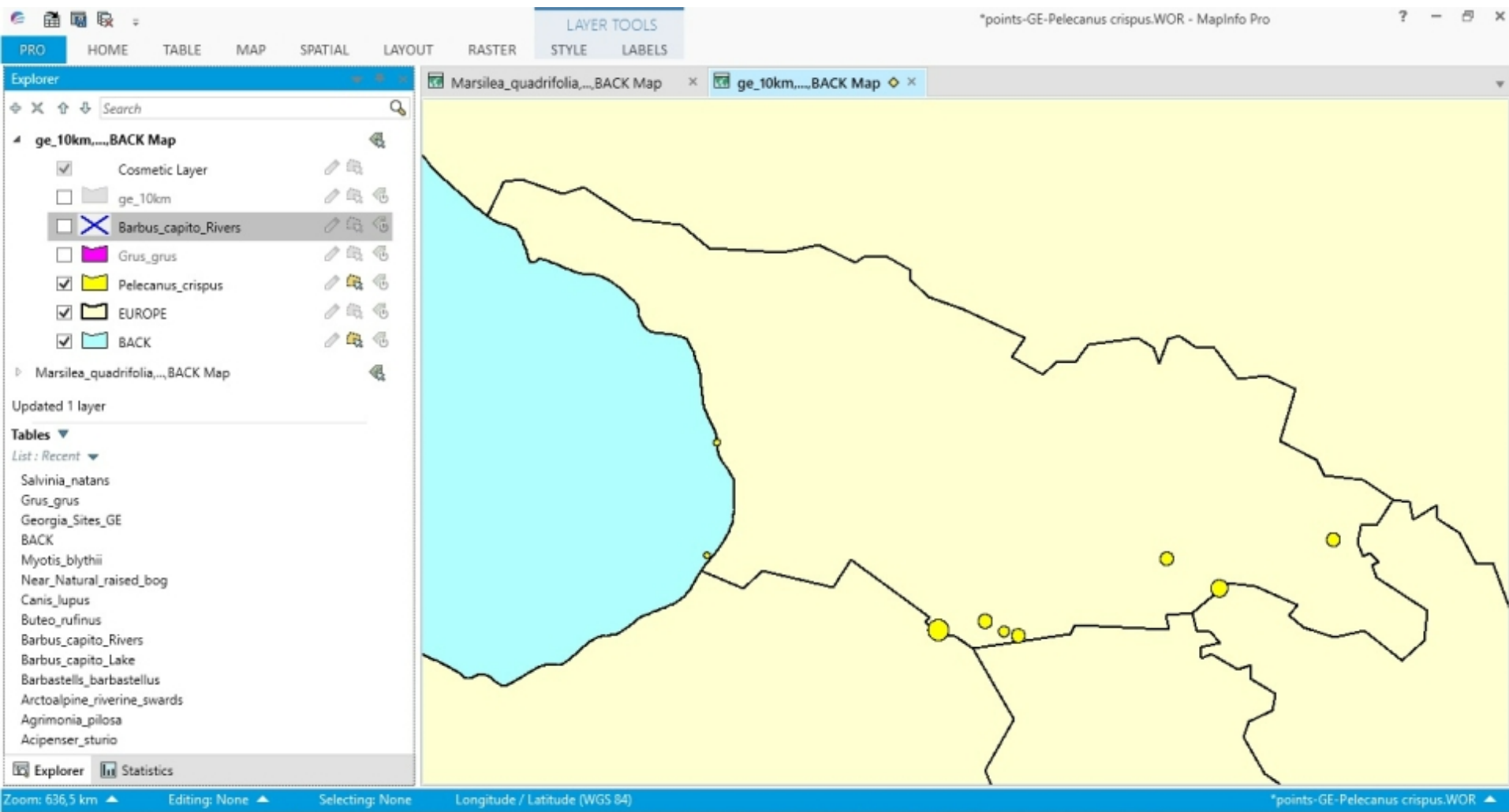
Example map: Russia habitat G3.9 Juniperus forests



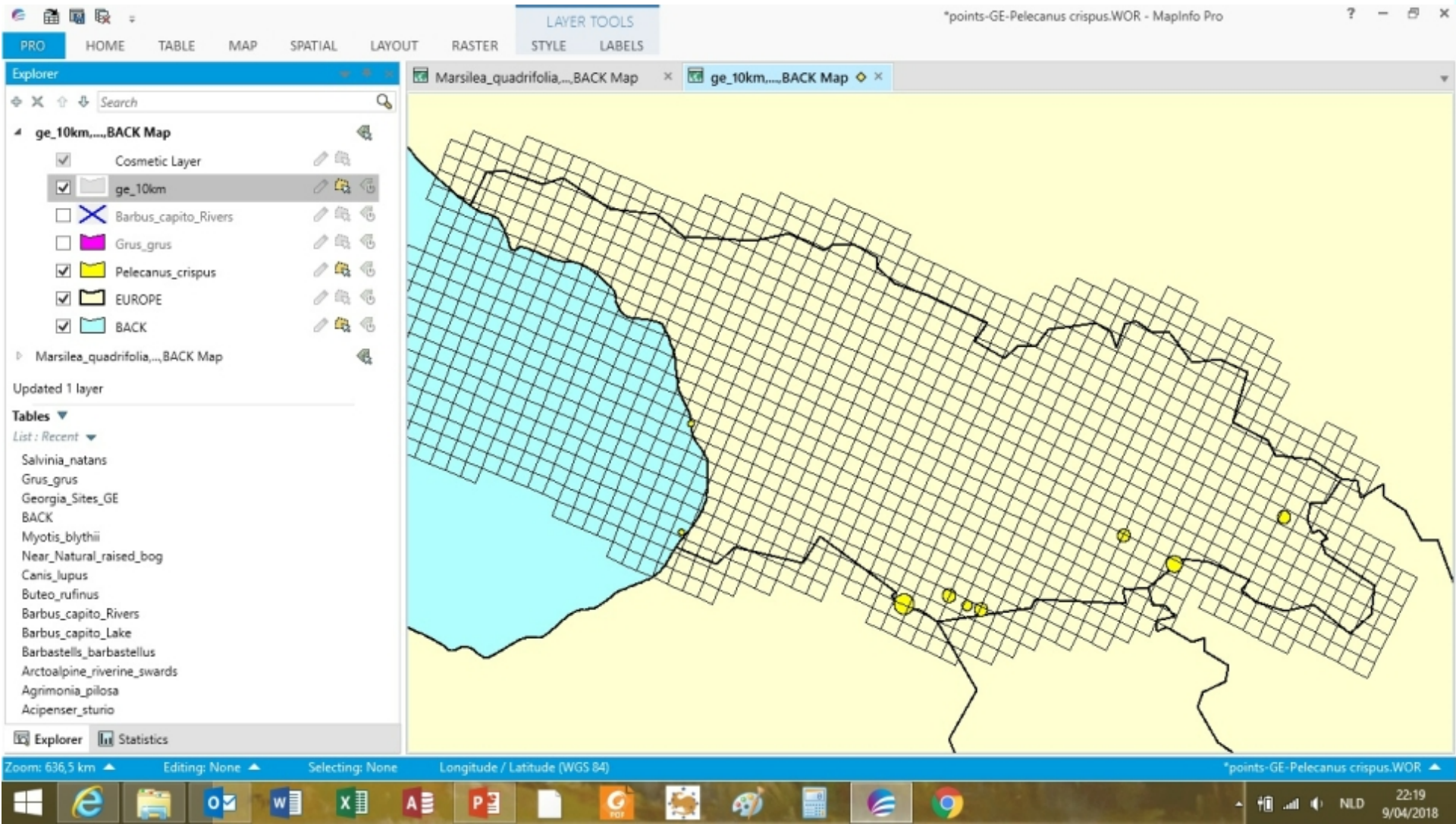
Geographical points

- Indicate the grid cell(s) in which the point(s) is (are) situated
- Please be aware, the request is to create a complete distribution map for the whole country
- This type of data will probably be useful for species and habitats with a (very) limited distribution area or as additional information together with other layers
- e.g. birds with a very restricted number of breeding places

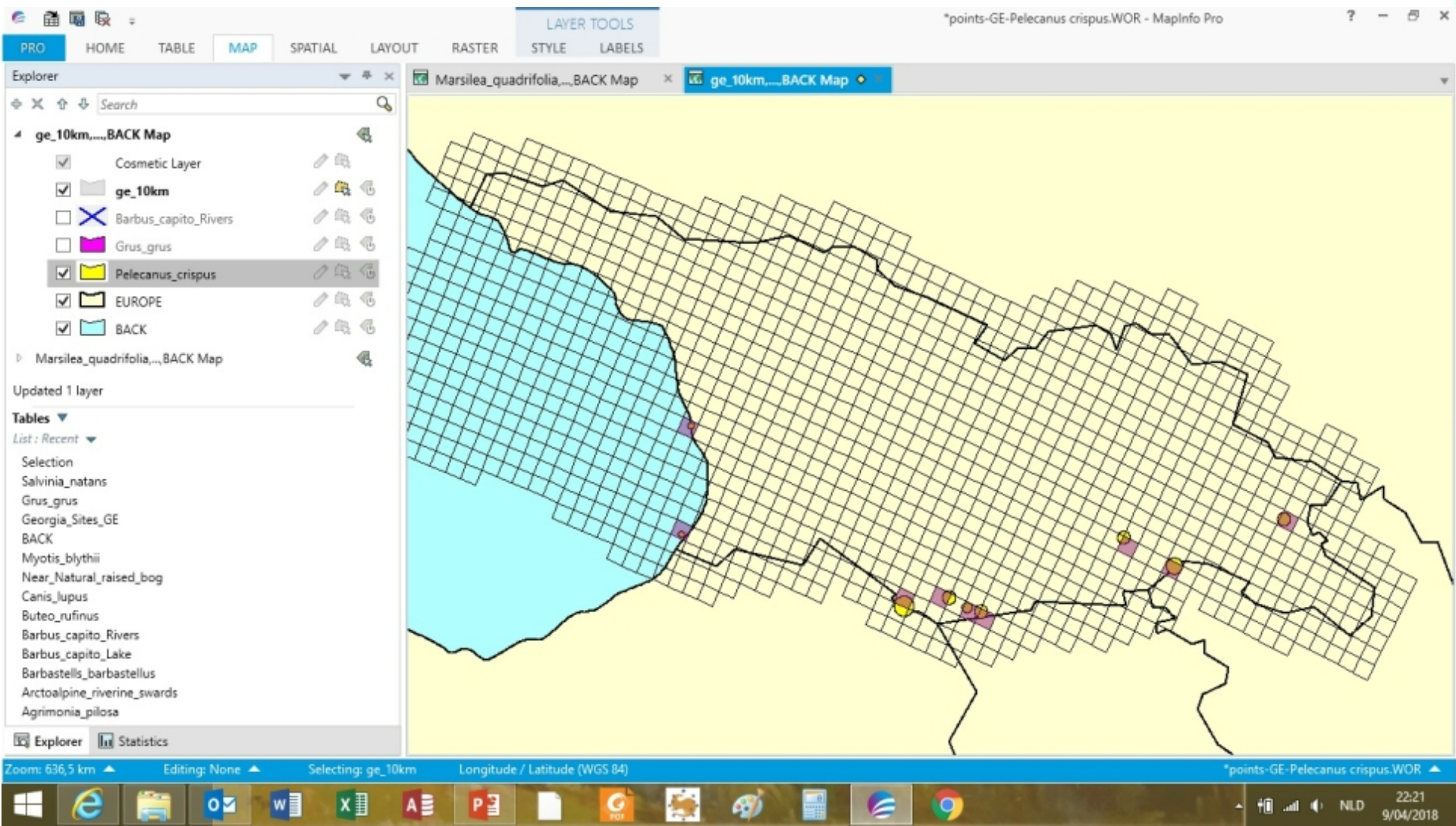
Pelecanus crispus Georgia



Pelecanus crispus Georgia



Pelecanus crispus Georgia



Pelecanus crispus Georgia

The screenshot displays the MapInfo Pro interface for a project titled "*points-GE-Pelecanus crispus.WOR". The main map area shows a yellow background with a black outline of Georgia. Several pink square markers are placed on the map, representing the locations of *Pelecanus crispus*. The interface includes a top menu bar with options like PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, and LABELS. On the left, there is an Explorer panel with a search bar and a list of layers. The selected layer is "GE_Pelecanus_crispus_selected_g", which is highlighted in pink. Other layers include "Cosmetic Layer", "ge_10km", "Barbus_capito_Rivers", "Grus_grus", "Pelecanus_crispus", "EUROPE", and "BACK". Below the Explorer panel, there is a "Tables" section with a "List: Recent" dropdown. The status bar at the bottom shows "Zoom: 636,5 km", "Editing: None", and "Selecting: ge_10km". The Windows taskbar is visible at the very bottom, showing various application icons and the system clock displaying "22:26 9/04/2018".

Lines: river sections, transects etc ..

- Lines can be considered as a rather detailed inventory
- All grid cells touching the line are taken into account, even for small coverages ?
- Or should we take a minimum length of the line covering the grid cell ?

Barbus capito Georgia

The screenshot displays the MapInfo Pro software interface. The main window shows a map of Georgia with a river network highlighted in blue. The interface includes a menu bar with options like PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, and LABELS. A toolbar is visible at the top. The Explorer panel on the left shows a list of layers, with 'Barbus_capito_Rivers' selected. The status bar at the bottom indicates the zoom level (636,5 km) and the current selection (ge_10km).

MapInfo Pro interface showing a map of Georgia with a river network highlighted in blue. The interface includes a menu bar, a toolbar, a layer explorer on the left, and a status bar at the bottom.

Layer Explorer (Left Panel):

- GE_Pelcanus_crispus_selected_g,...,BACK Map
 - Cosmetic Layer
 - GE_Pelcanus_crispus_selected_g
 - ge_10km
 - Barbus_capito_Rivers
 - Grus_grus
 - Pelecanus_crispus
 - EUROPE
 - BACK
- Marsilea_quadrifolia,...,BACK Map

Updated 1 layer

Tables

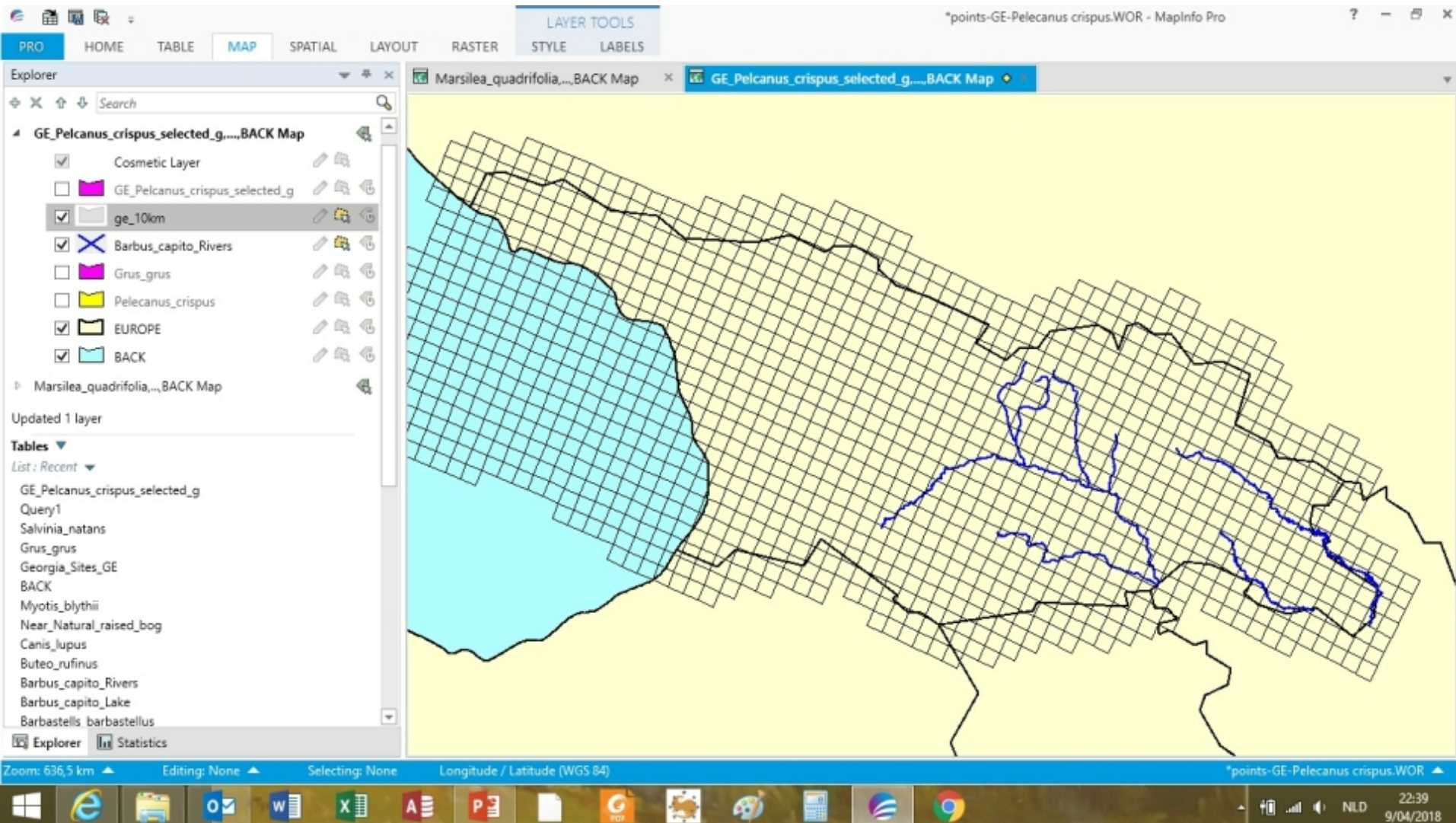
List: Recent

- GE_Pelcanus_crispus_selected_g
- Query1
- Salvinia_natans
- Grus_grus
- Georgia_Sites_GE
- BACK
- Myotis_blythii
- Near_Natural_raised_bog
- Canis_lupus
- Buteo_rufinus
- Barbus_capito_Rivers
- Barbus_capito_Lake
- Barbastellis_barbastellus

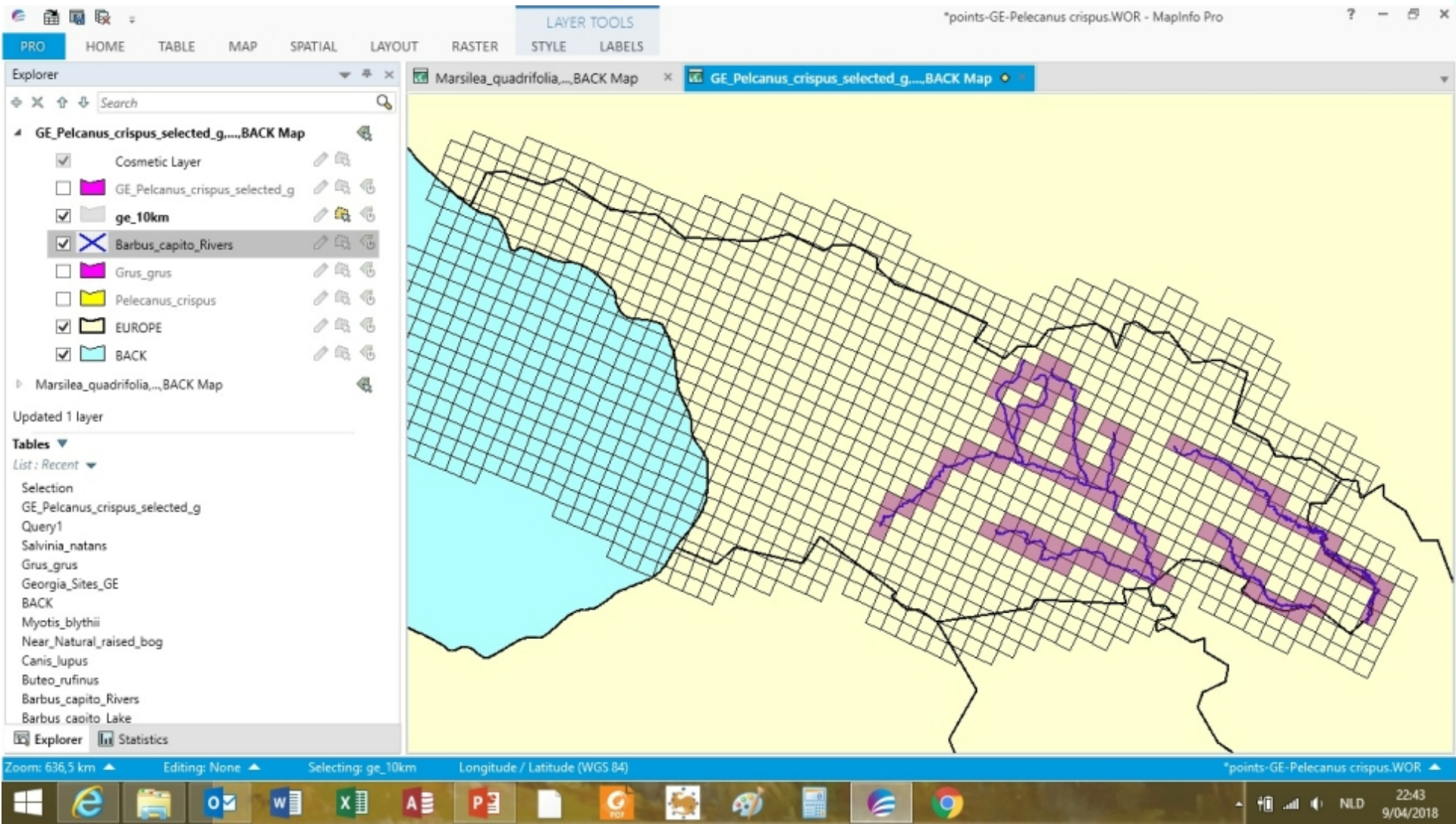
Zoom: 636,5 km | Editing: None | Selecting: ge_10km

*points-GE-Pelecanus_crispus.WOR

Barbus capito Georgia



Barbus capito Georgia



Barbus capito Georgia

The screenshot displays the MapInfo Pro software interface. The main window shows a map of Georgia with a grid overlay. The grid is colored pink, indicating the location of *Barbus capito*. The interface includes a menu bar (PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, LABELS), a toolbar, and a layer explorer on the left. The layer explorer shows the following layers:

- GE_Barbus_capito_selected_grid,....BACK Map
 - Cosmetic Layer
 - GE_Barbus_capito_selected_grid
 - GE_Pelcanus_crispus_selected_g
 - ge_10km
 - Barbus_capito_Rivers
 - Grus_grus
 - Pelecanus_crispus
 - EUROPE
 - BACK
- Marsilea_quadrifolia,....BACK Map

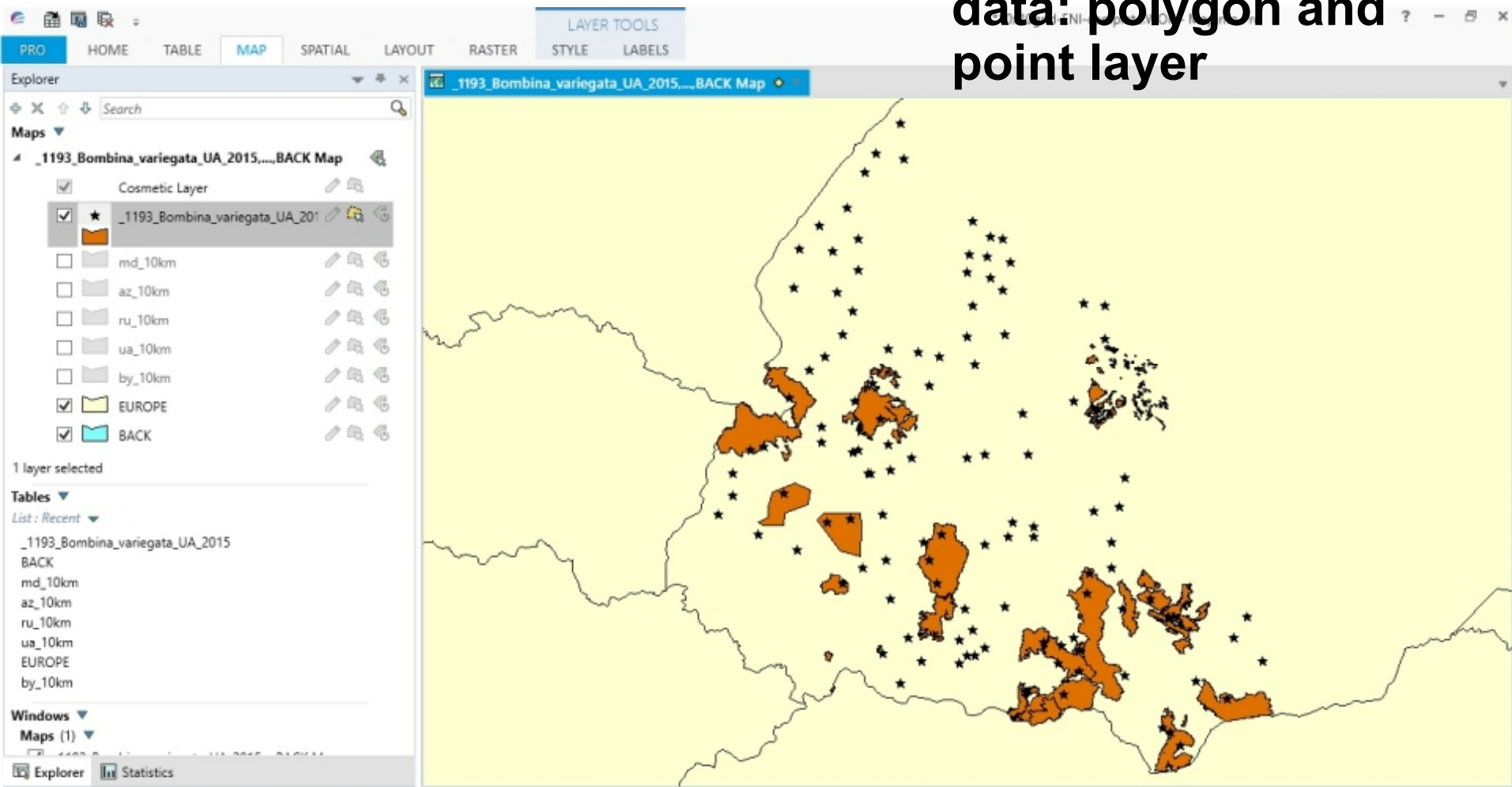
The status bar at the bottom indicates a zoom of 636,5 km, editing mode (None), and selection mode (ge_10km). The system tray shows the date and time as 9/04/2018 22:46.

Polygons

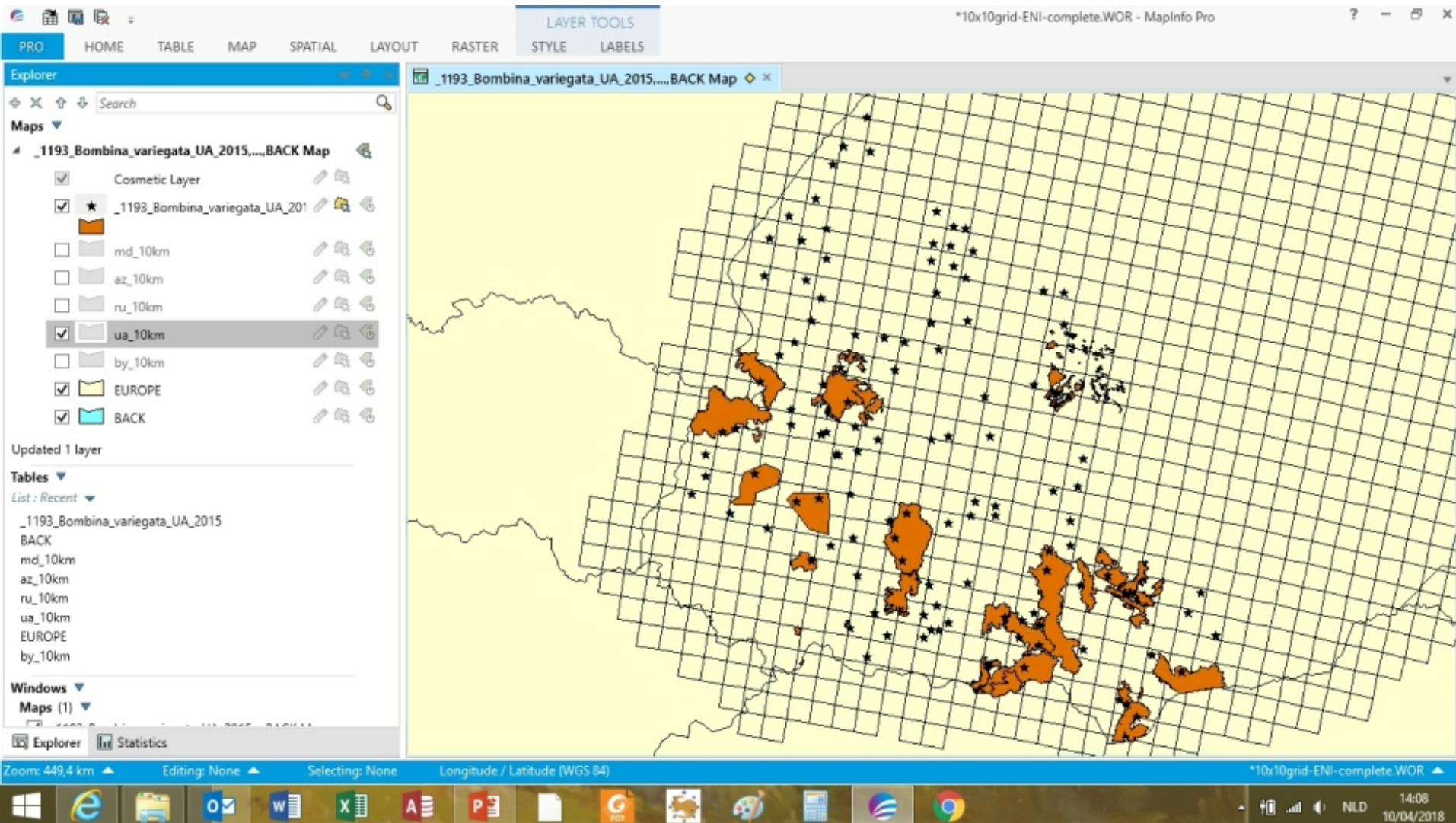
- All grid cells touching the polygon are taken into account with the exception of a certain minimum percentage. (to be defined: 30 % ?)
- Or should there be a variable percentage in function of the distribution pattern of the feature ?
- Or should all grid cells touching the original polygon be taken in to account ?

Bombina variegata Ukraine

Original distribution data: polygon and point layer



Bombina variegata Ukraine



Bombina variegata Ukraine: working with polygon layer

The screenshot displays the MapInfo Pro interface. The main map area shows a grid overlay on a map of Ukraine, with several red and purple polygon shapes representing the distribution of *Bombina variegata*. The interface includes a menu bar (PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER), a toolbar, and a 'LAYER TOOLS' panel with 'STYLE' and 'LABELS' options. The Explorer panel on the left shows a list of layers, including 'Cosmetic Layer', '_1193_Bombina_variegata_UA_201', 'UA_Bombina_variegata_slected_g', and various regional layers (md_10km, az_10km, ru_10km, ua_10km, by_10km). The 'Tables' panel shows a list of tables, including 'Selection', 'UA_Bombina_variegata_slected_g', and '_1193_Bombina_variegata_UA_2015'. The status bar at the bottom indicates 'Zoom: 449,4 km', 'Editing: None', 'Selecting: ua_10km', and 'Longitude / Latitude (WGS 84)'. The title bar shows '*10x10grid-ENI-complete.WOR - MapInfo Pro'.

Bombina variegata Ukraine: working with polygon and point layer

The screenshot displays the MapInfo Pro software interface. The main window shows a map of Ukraine with a 10km grid overlay. The map features a red polygon layer and a purple point layer. The Explorer panel on the left lists the layers: Cosmetic Layer, *_1193_Bombina_variegata_UA_201*, md_10km, az_10km, ru_10km, ua_10km, by_10km, EUROPE, and BACK. The Layer Tools panel at the top right is active. The status bar at the bottom indicates the zoom level (449.4 km), editing mode (None), and the selected layer (ua_10km). The system tray at the bottom right shows the date and time (10/04/2018, 14:21).

Bombina variegata Ukraine: result from polygon layer

The screenshot displays a GIS software interface with the following components:

- Menu Bar:** Includes options like PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, and LABELS.
- Explorer Panel:** Lists layers and tables. The 'Maps' section shows a tree view with layers such as 'Cosmetic Layer', '_1193_Bombina_variegata_UA_201', 'UA_Bombina_variegata_slected_g' (highlighted in pink), 'md_10km', 'az_10km', 'ru_10km', 'ua_10km', 'by_10km', 'EUROPE', and 'BACK'. The 'Tables' section lists 'Query2', 'Query1', and various data tables.
- Main Map:** Shows a map of Ukraine with several pink polygon shapes overlaid, representing the distribution of Bombina variegata. The background is a light yellow color.
- Status Bar:** Shows 'Zoom: 449,4 km', 'Editing: None', 'Selecting: None', and 'Longitude / Latitude (WGS 84)'. The bottom right corner displays the time '14:33' and date '10/04/2018'.

Bombina variegata Ukraine: result polygon and point layer

The screenshot displays the MapInfo Pro interface. The main map area shows a yellow background with a pink grid overlay, representing the result polygon and point layer for Bombina variegata in Ukraine. The grid is concentrated in the central and southern parts of the country. The interface includes a menu bar at the top with options like PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, and LABELS. The Explorer panel on the left shows a list of layers, with 'UA_Bombina_variegata_slec_2' selected. The Tables panel at the bottom left lists various data tables. The status bar at the bottom indicates a zoom of 449.4 km and editing/selection status.

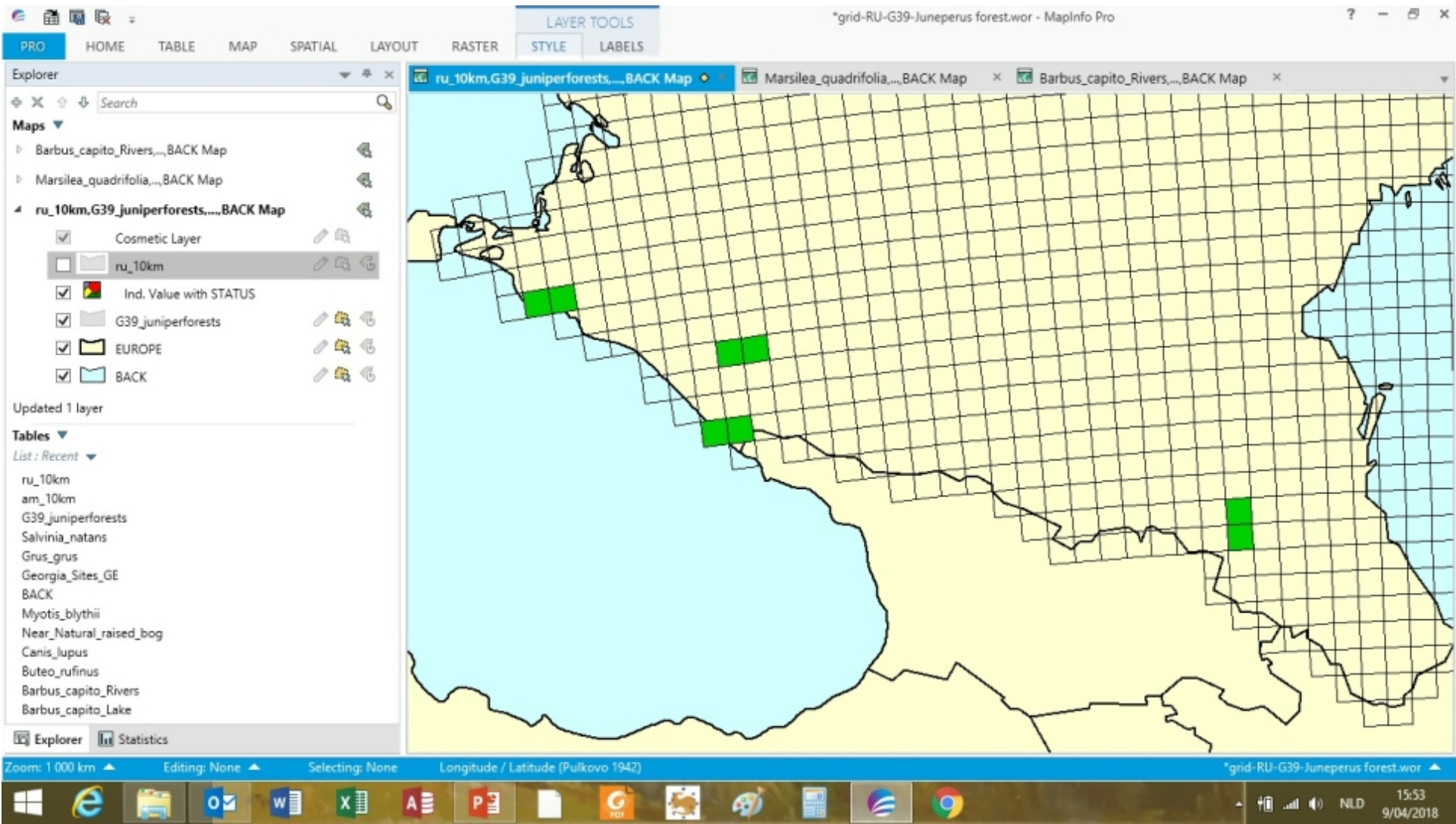
MapInfo Pro interface showing the result polygon and point layer for Bombina variegata in Ukraine. The map displays a grid of pink polygons overlaid on a yellow background, representing the distribution of the species. The interface includes a menu bar (PRO, HOME, TABLE, MAP, SPATIAL, LAYOUT, RASTER, STYLE, LABELS), an Explorer panel on the left, and a Tables panel at the bottom left. The Explorer panel shows the selected layer: UA_Bombina_variegata_slec_2. The Tables panel lists various data tables, including UA_Bombina_variegata_slec_2, Query2, UA_Bombina_variegata_slected_g, Query1, _1193_Bombina_variegata_UA_2015, BACK, md_10km, and az_10km. The status bar at the bottom indicates a zoom of 449.4 km and editing/selection status.

Gridded data

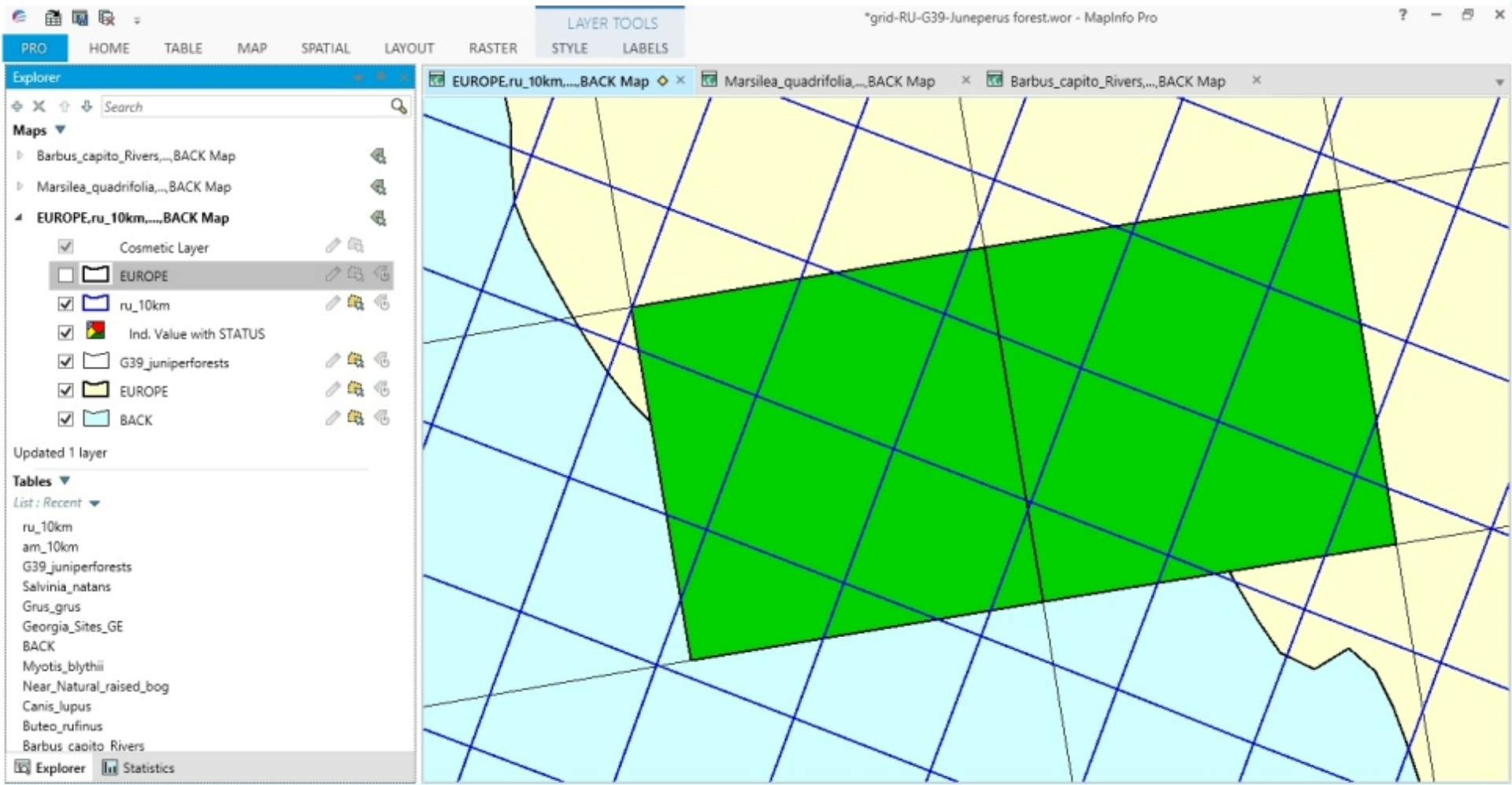
Source grid $> 10 \times 10 \text{ km}$

- All grid cells covered by the larger original grid cells are marked. (minimum coverage percentage to be defined)
- The total area covered by the resulting grid cells will quite likely be larger than the original

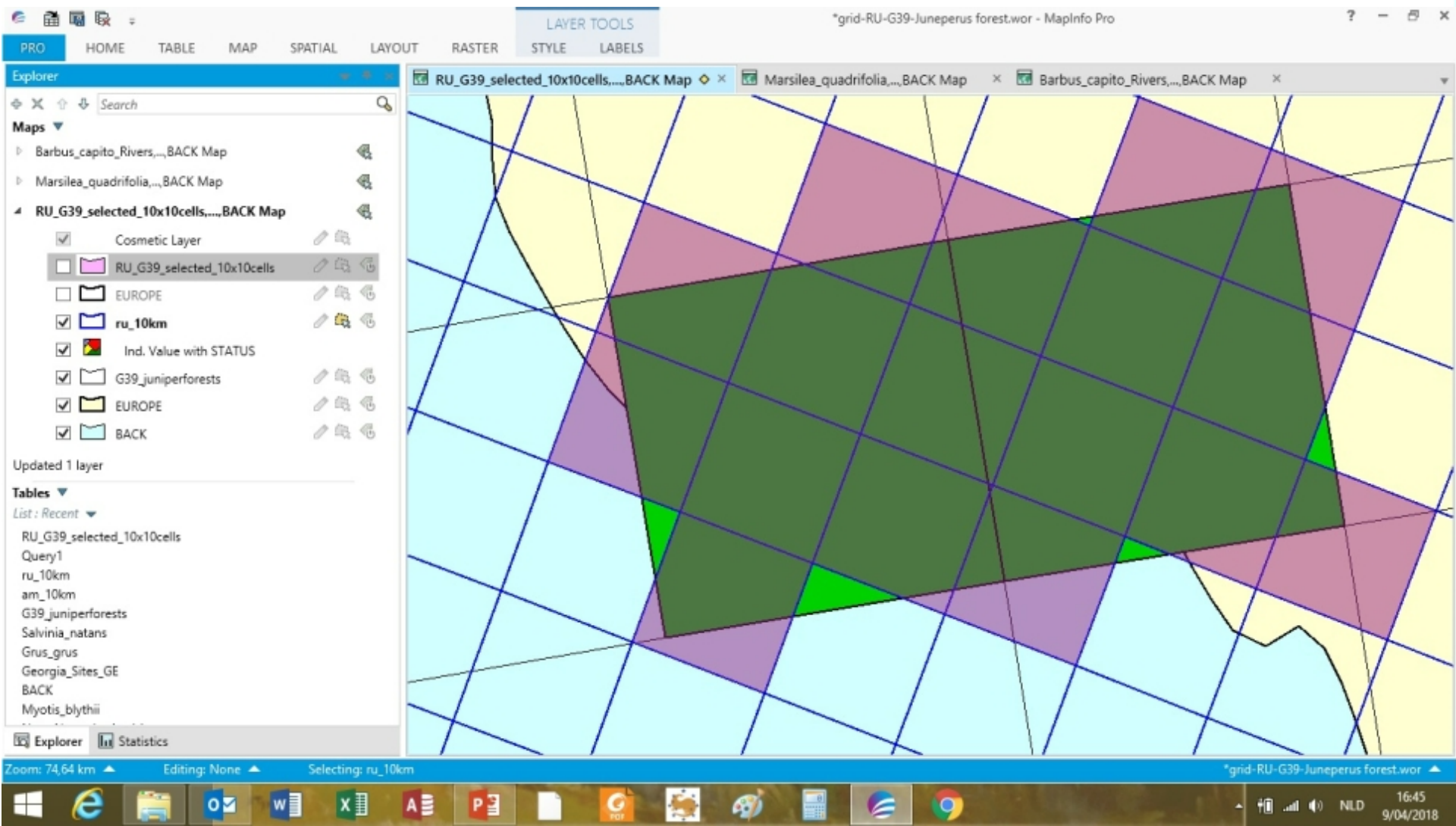
Habitat G3.9 Juniperus forests 25x25km grid



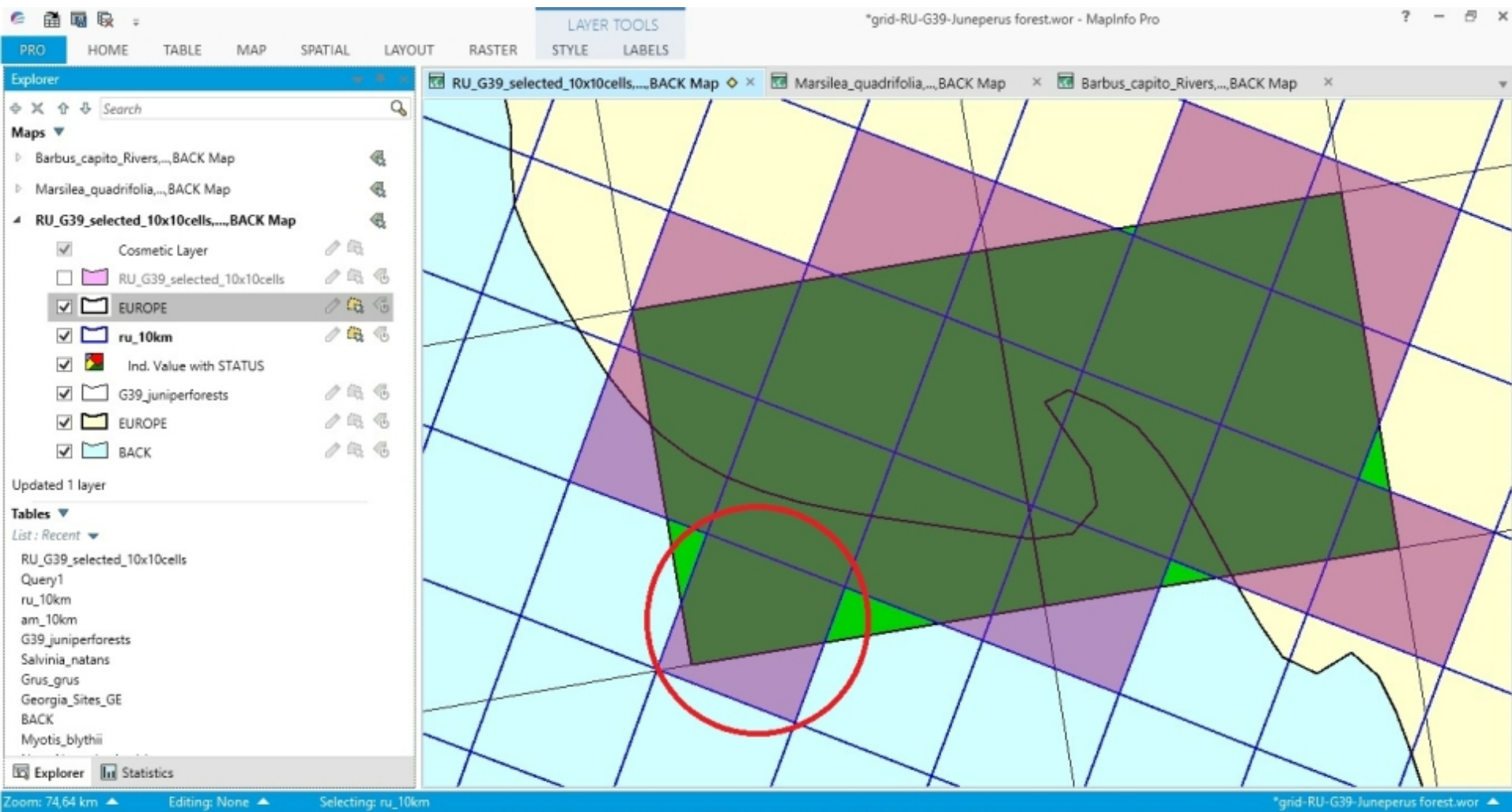
Habitat G3.9 Juniperus forests 25x25km grid



Habitat G3.9 Juniperus forests 25x25km grid



Habitat G3.9 Juniperus forests 25x25km grid



Gridded data

Source grid < 10x10km

- All grid cells covered by the smaller grid cells is marked. (the minimum percentage from the covering grid cell should be defined)
- The total area covered by the resulting grid cells will quite likely be smaller than the original

Conclusions

- One single set of rules for all countries and features is not possible
- 100% automated procedure is not possible
- Need for “cosmetic” cleaning: e.g.
 - ✓ Taking into account the “left-over polygons” larger than 30 % of the size of a grid cell, but split over 2 or more grid cells
 - ✓ Removal of accidentally selected marine grid cells for terrestrial features
 - ✓ Or even manual clean-up, but this is time consuming
 - ✓