



Session 3: Sys4ENCA et la comptabilité écosystémique annuelle et tendance

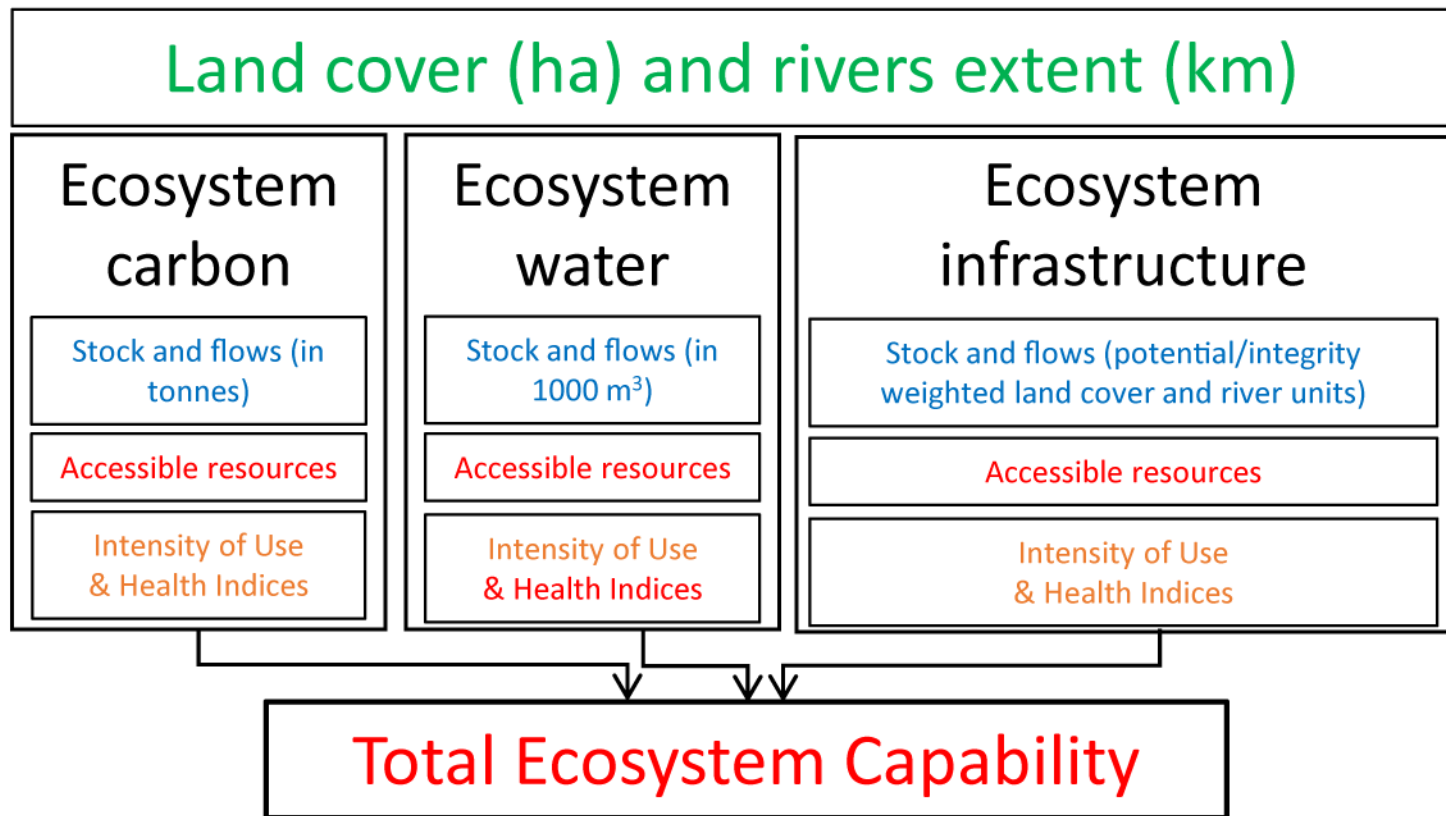
Atelier de formation Sys4ENCA, plateforme semi-automatisée de Comptabilité Écosystémique du Capital Naturel (CECN)

Dakar, 23 - 27 octobre 2023



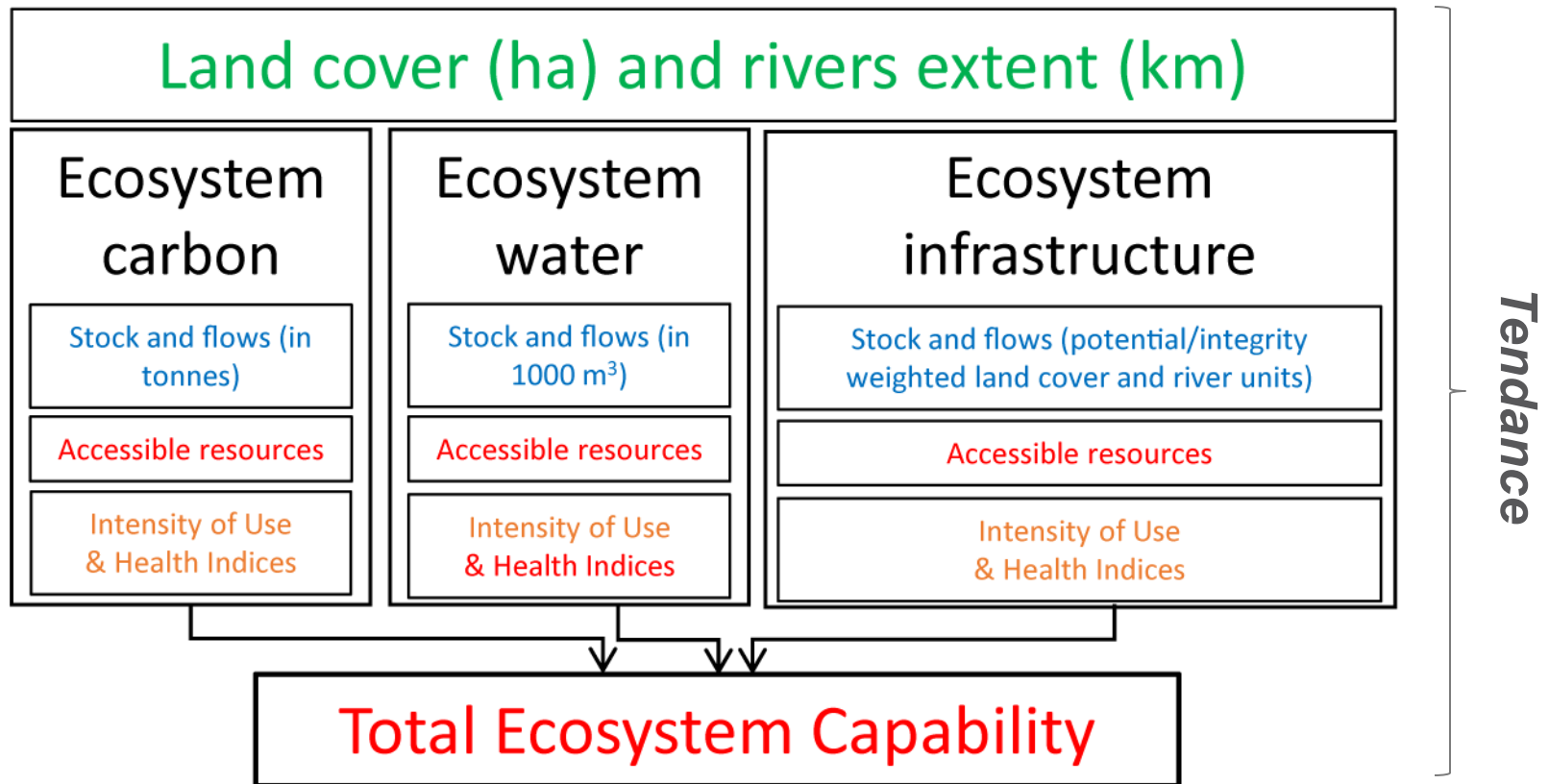
La CECN et ses composantes

Accounts for an Ecosystem Unit



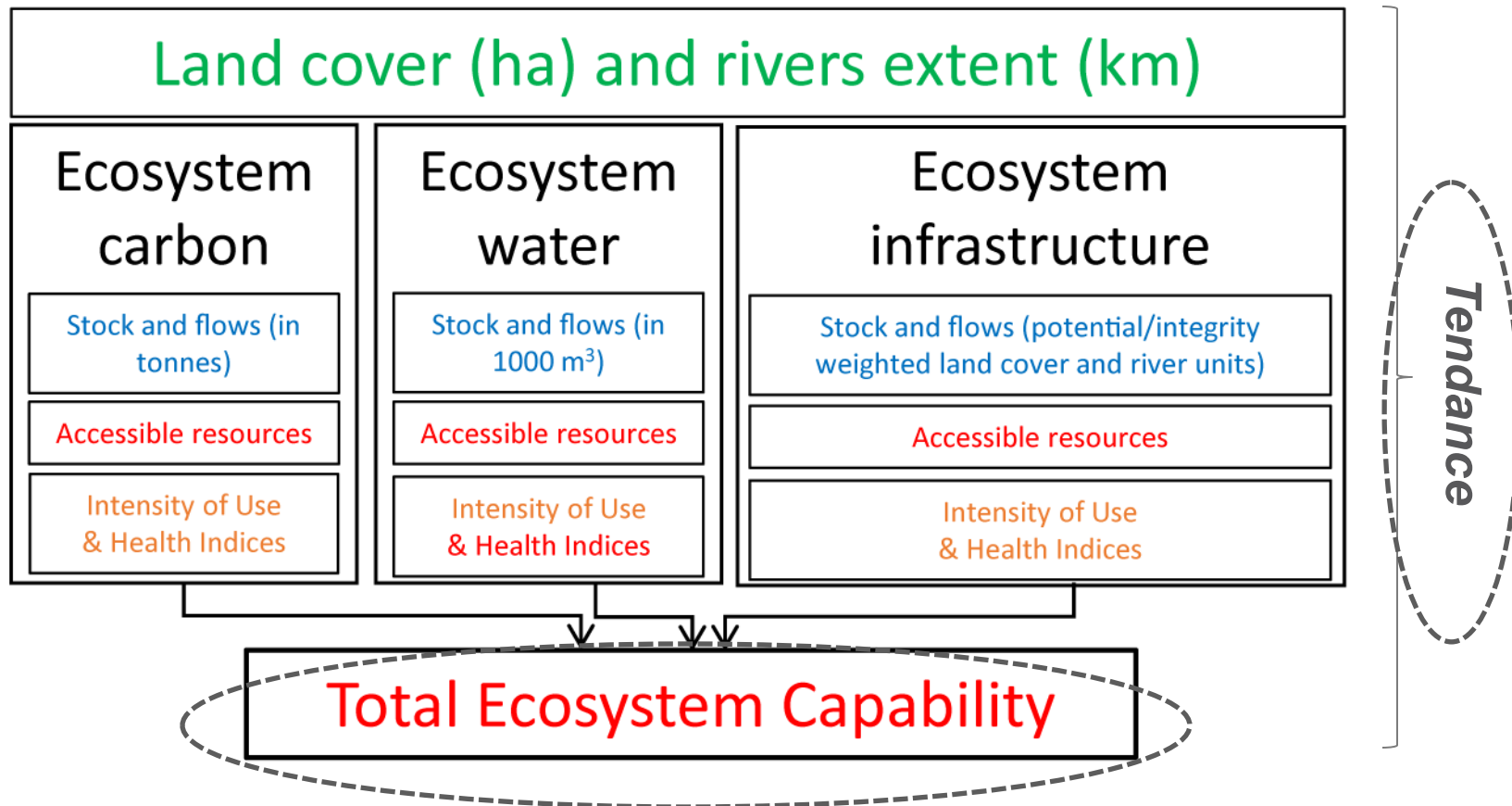
La CECN et ses composantes

Accounts for an Ecosystem Unit



La CECN et ses composantes

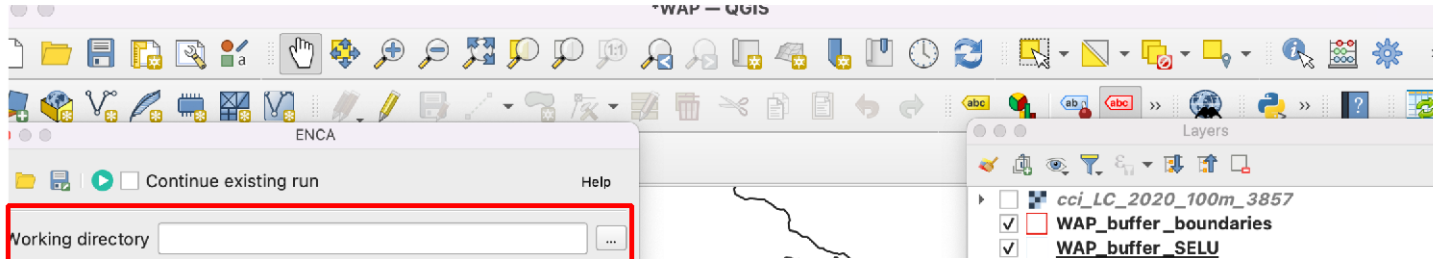
Accounts for an Ecosystem Unit



La CECN et ses composants dans Sys4ENCA

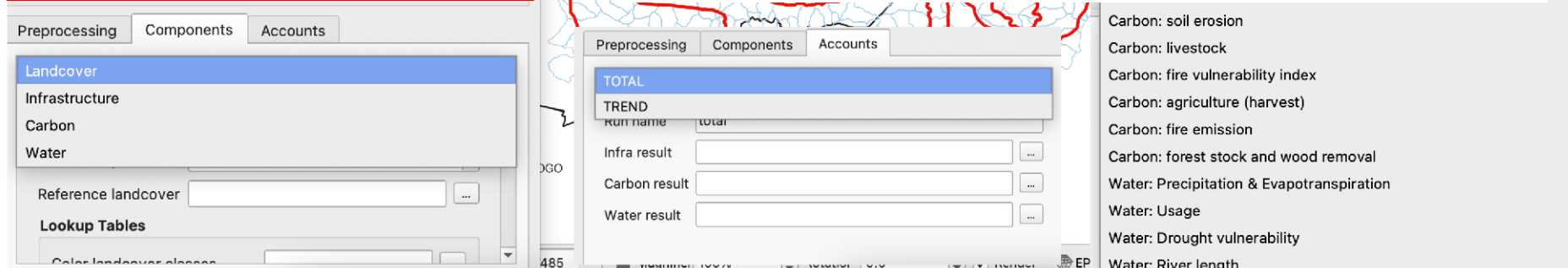
The screenshot displays the Sys4ENCA software interface. On the left, the ENCA configuration window is open, showing various settings. The 'Study Scope' section includes a 'Year' field set to 1900. The 'Area Of Interest' section contains fields for 'Reporting area boundaries', 'Selected area codes', 'Area of interest name', 'Administrative boundaries', 'Landcover map', and 'Tier level' set to 1. The 'Preprocessing' tab is selected, and the 'Components' sub-tab is active, showing a list of components: Landcover, Infrastructure, Carbon, and Water. The 'Accounts' sub-tab is also visible, showing a list of accounts including Carbon: vegetation productivity (NPP), Carbon: soil stock, Carbon: soil erosion, Carbon: livestock, Carbon: fire vulnerability index, Carbon: agriculture (harvest), Carbon: fire emission, Carbon: forest stock and wood removal, Water: Precipitation & Evapotranspiration, Water: Usage, Water: Drought vulnerability, and Water: River length. The 'Preprocessing' and 'Accounts' tabs are circled in red. In the center, a map of Niger is shown with a red boundary. The 'Layers' panel on the right lists several layers: cci_LC_2020_100m_3857, WAP_buffer_boundaries, WAP_buffer_SELU, and countries_WAP_3857. The 'Accounts' window is also open, showing a table with columns for 'TOTAL' and 'TREND', and rows for 'Infra result', 'Carbon result', and 'Water result'.

Définir le champ d'application/étendue de l'étude



- Exemple: Comptabilité écosystémique du Complexe WAP (Niger, Burkina Faso, Benin) sur base de données globales/publiques -> (Tier-1) pour l'année 2020.

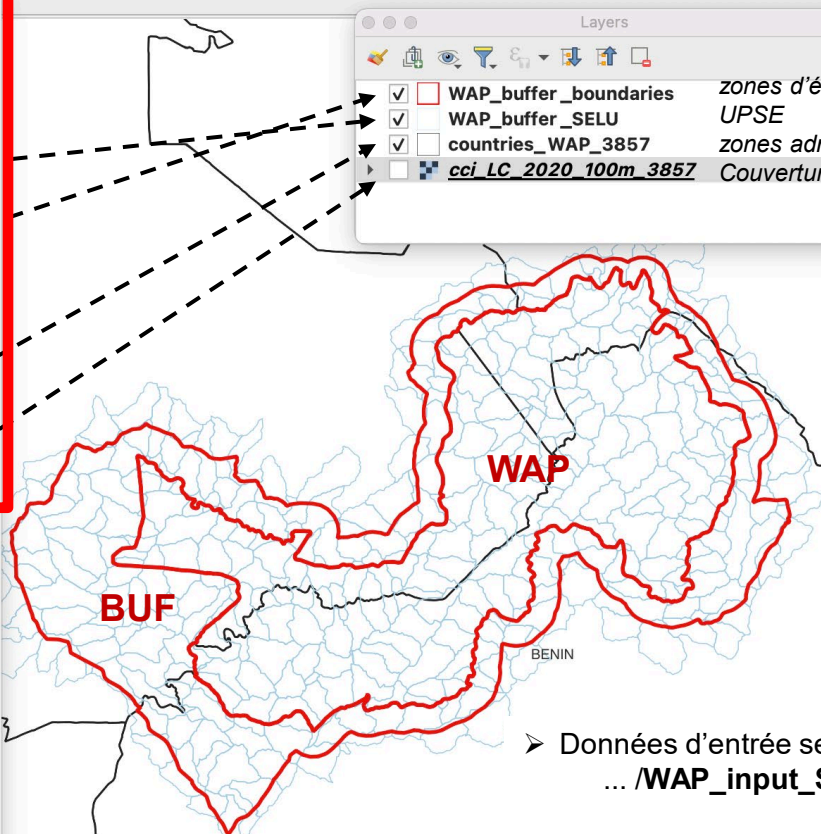
- Créez un dossier « WAP_output_Sys4ENCA »



Champ d'application/étendue de l'étude: données

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/...



zones d'étude

REP_ID	NAME_0
1 WAP	WAP parc
2 BUF	Buffer

} vecteurs
grids

UPSE

HYBAS_ID	DLCT
<Hybas id>	
....	
<Hybas id _m >	

zones administratives

ADMIN_ID	NAME_0
1 BEN	BENIN
2 BFA	BURKINA FA...
3 NER	NIGER
4 TGO	TOGO

➤ Données d'entrée se trouve dans le dossier:
... /WAP_input_Sys4ENCA/.....

Champ d'application/étendue de l'étude: données

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/.....

The screenshot shows the ENCA software interface. The 'Study Scope' section is highlighted with a red box and contains the following settings:

- Working directory: s:\APBio\Phase_II\plugin\WAP_output_Sys4ENCA
- Year: 2020
- Spatial Accounting Units: Sys4ENCA\WAP_buffer_SELU.shp
- Reporting area boundaries: A\WAP_buffer_boundaries.shp
- Selected area codes: BUF,WAP
- Area of interest name: WAP_Buffer
- Administrative boundaries: s4ENCA\countries_WAP_3857.shp
- Landcover map: NCA\cci_LC_2020_100m_3857.tiff
- Tier level: 1

The 'Layers' panel on the right shows the following layers:

- WAP_buffer_boundaries (zones d'étude)
- WAP_buffer_SELU (UPSE)
- countries_WAP_3857 (zones administratives)
- cci_LC_2020_100m_3857 (Couverture de terres)

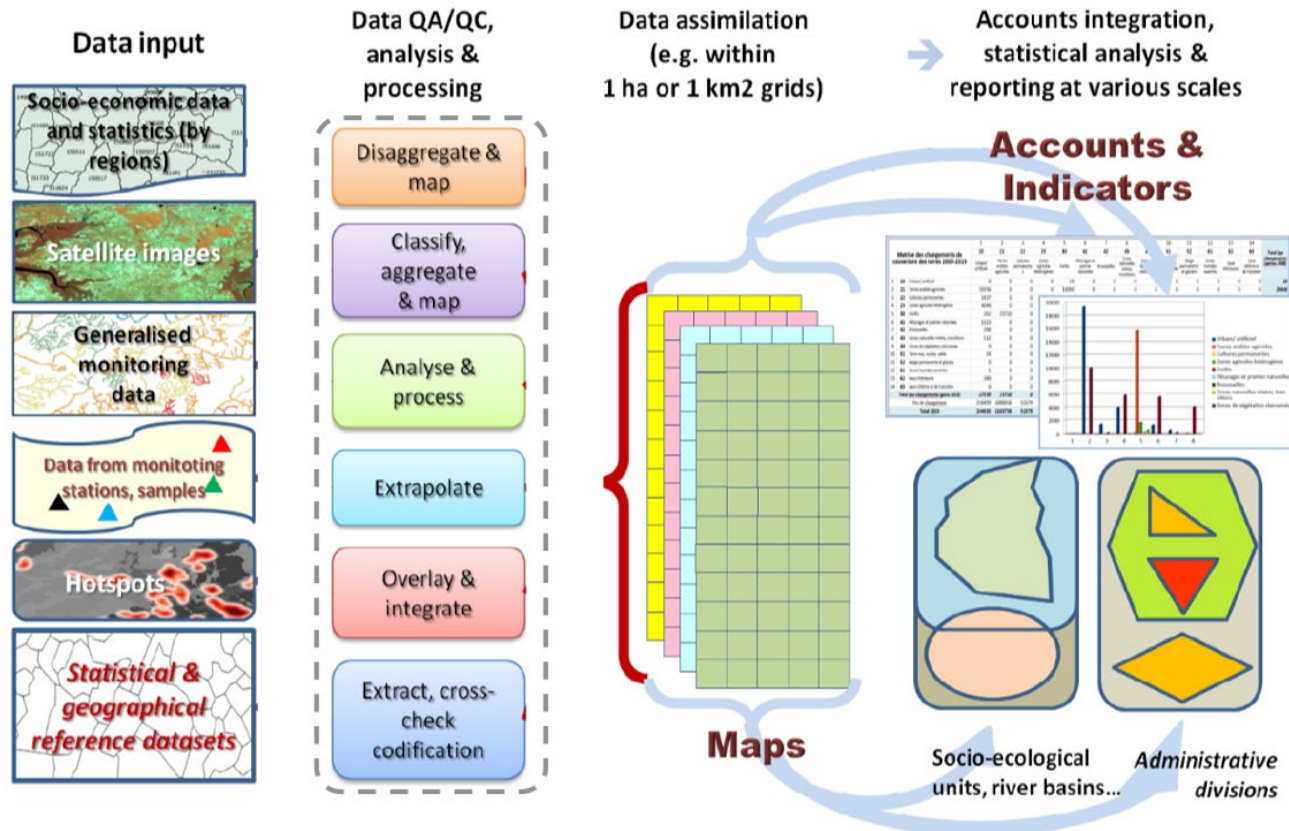
The map displays land cover data for Burkina Faso and Niger, with a red outline indicating the study area. The map is overlaid with a grid.

} vecteurs
grids

Couverture de terres:

- Inclure les zones d'étude et polygones UPSE
- Band: chiffres correspondants au code des classe de couverture des terres de la légende

Fichier raster de la couverture des terres



Objectif:

- Grid de référence pour calcul
- Information concernant la couverture des terres (pour certains modules uniquement)

Le comptabilité écosystémique totale dans Sys4ENCA

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TOTAL/total

The screenshot displays the Sys4ENCA software interface. The 'Working directory' is set to 's:\APBio\Phase_II\plugin\WAP_output_Sys4ENCA'. The 'Study Scope' section shows 'Year' as 2020 and 'Spatial Accounting Units' as 'Sys4ENCA\WAP_buffer_SELU.shp'. The 'Area Of Interest' section shows 'Reporting area boundaries' as 'A\WAP_buffer_boundaries.shp', 'Selected area codes' as 'BUF,WAP', and 'Area of interest name' as 'WAP_Buffer'. The 'Administrative boundaries' are 's4ENCA\countries_WAP_3857.shp' and the 'Landcover map' is 'NCA\cci_LC_2020_100m_3857.tiff'. The 'Tier level' is set to '1'. The 'Accounts' tab is active, showing 'TOTAL' as the selected account and 'total' as the run name. The 'Preprocessing' section shows 'Run name' as 'total', 'Infra result' as 'training\WAP_Buffer\1\ENCA\infra\Infrastructure', 'Carbon result' as 'training\WAP_Buffer\1\ENCA\CARBON\carbon', and 'Water result' as 'AP_training\WAP_Buffer\1\ENCA\WATER\water'. The 'Layers' panel shows 'WAP_buffer_boundaries', 'WAP_buffer_SELU', 'countries_WAP_3857', and 'cci_LC_2020_100m_3857'. The map shows a geographical area with a red outline representing the 'WAP_Buffer' and a blue outline representing the 'countries_WAP_3857'.

➤ Des sorties exemples pour les modules 'infrastructure', 'carbone' et 'eau' se trouvent dans le dossier:

... /WAP_input_Sys4ENCA/Total/Infrastructure
/carbon
/water

Exécuter Sys4ENCA

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TOTAL/total

The screenshot displays the Sys4ENCA software interface. On the left, the 'Accounts' tab is active, showing the 'TOTAL' account configuration. The 'Run name' is set to 'total'. The output paths for 'Infra result', 'Carbon result', and 'Water result' are all set to a directory structure: 'AP_trainingWAP_Buffer\1\ENCA\WATER\water'. A red circle highlights the play button in the top toolbar, indicating the execution of the run.

On the right, a map of Benin is shown with a red boundary representing the 'WAP_buffer_boundaries'. The 'Layers' panel on the right side of the map shows the following layers:

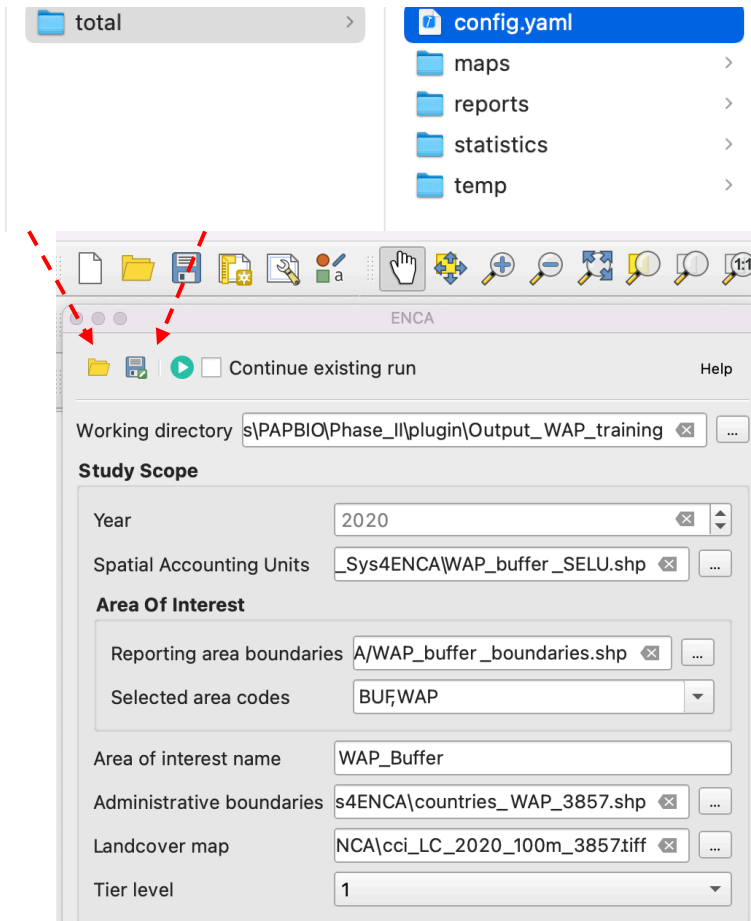
- WAP_buffer_boundaries
- WAP_buffer_SELU
- countries_WAP_3857
- cci_LC_2020_100m_3857

The map also shows the label 'BENIN' and a coordinate system of EPSG:4326.

Les sorties de Sys4ENCA : fichier yamli

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TOTAL/total



➤ Fichier contenant les paramètres de votre run

```

config_Total.yamli
config_Total
config_Total } No Selection

1 TOTAL:
2 carbon_result: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Output_WAP_training\WAP_Buffer\1\ENCA\CARBON\carbon
3 infra_result: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Output_WAP_training\WAP_Buffer\1\ENCA\infra\Infrast
  ructure
4 water_result: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Output_WAP_training\WAP_Buffer\1\ENCA\WATER\water
5 admin_boundaries: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Input_WAP\WAP_input_Sys4ENCA\countries_WAP_3857.shp
6 aoi_name: WAP_Buffer
7 component: TOTAL
8 continue: false
9 land_cover:
10 2020: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Input_WAP\WAP_input_Sys4ENCA\cci_LC_2020_100m_3857
  .tiff
11 output_dir: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Output_WAP_training
12 reporting_shape: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Input_WAP\WAP_input_Sys4ENCA\WAP_buffer_boundaries
  .shp
13 run_name: total
14 selected_regions:
15 - BUF
16 - WAP
17 statistics_shape: C:\Users\VDH00FC\OneDrive -
  VITO\Documents\PAPBio\Phase_II\plugin\Input_WAP\WAP_input_Sys4ENCA\WAP_buffer_SELU.shp
18 tier: 1
19 years:
20 - 2020
  
```

Les sorties de Sys4ENCA : tableaux

➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TOTAL/total

total >

- config.yaml
- maps >
- reports >
- statistics >**
- temp >

SELU_stats_2020.csv

-> par UPSE

	HYBAS_ID	Area_rast	NECP	SCU	CEH	CEIUV	NEWP
	123 Integer (32 bit) ▾	1.2 Decimal (double) ▾	1.2 Decimal (double) ▾	1.2 Decimal (double) ▾	1.2 Decimal (double) ▾	1.2 Decimal (double) ▾	1.2 Decimal (double) ▾
1	1120716020	16974.0	39853.3079932261	1.0	1.0	1.0	36714900.005007565
2	1120716960	7112.0	18030.71598997331	1.0	0.9488751436547032	0.9744375718273516	597673840.5681012
3	1120717330	20946.0	75981.5343389467	1.0	0.9882841599650044	0.994142079982502	51138263.01434178
4	1120718520	19444.0	58110.63878764352	1.0	0.99997942810244	0.99998971405122	543565084.631444
5	1120718740	11528.0	41722.39843014265	1.0	1.0	1.0	29326362.484009087
6	1120719230	2831.0	7729.325224429748	1.0	0.9934298838250252	0.9967149419125124	672413024.4000576
7	1120719500	13787.0	49697.62646031628	1.0	1.0	1.0	34616888.75735565
8	1120719900	14253.0	35662.30473300468	1.0	1.0	1.0	33523809.556503978

total >

- config.yaml
- maps >
- reports >**
- statistics >
- temp >

NCA_TOTAL_report_BUF_2020.csv

NCA_TOTAL_report_WAP_2020.csv

-> par zones d'étude

	field_1	total	1	SHORT NAME	LABEL
1	Area_rast	1833018.0	1833018.0	Area_raster	area calculated from raster pixels [ha]
2	NECP	7687541.229007459	7687541.229007459	NEACP_potential	Net Ecosystem Carbon Potential (tonnes C)
3	SCU	0.9639357202640937	0.9639357202640938	SCU_SustUseIndex	Sustainable Intensity of Carbon Use Index
4	CEH	0.9712498054850871	0.971249805485087	CEH_CarbHealthIndex	Carbon Ecosystem Health Index
5	NEWP	10855281674.356571	10855281674.356571	NEAWP_potential	Net Ecosystem Water Potential (m3)
6	SIWU	0.9910400126365861	0.9910400126365864	SIWU_SustUseIndex	Sustainable Intensity of Water Use Index
7	TEIP	5031066.908815572	5031066.908815571	TEIP_potential	Total Ecosystem Infrastructure Potential (weighted ha)
8	EISUI	1.0	1.0	EISUI_SustUseIndex	Ecosystem Infrastructure Sustainable Use Index
9	NECP_n	768754.1229007458	768754.122900746	NEACP_norm	Net Ecosystem Carbon Potential_normalized
10	NEWP_n	1085528.1674356572	1085528.1674356572	NEAWP_norm	Net Ecosystem Water Potential_normalized

Les sorties de Sys4ENCA : vecteurs

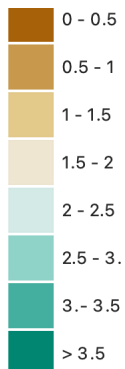
➤ Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TOTAL/total

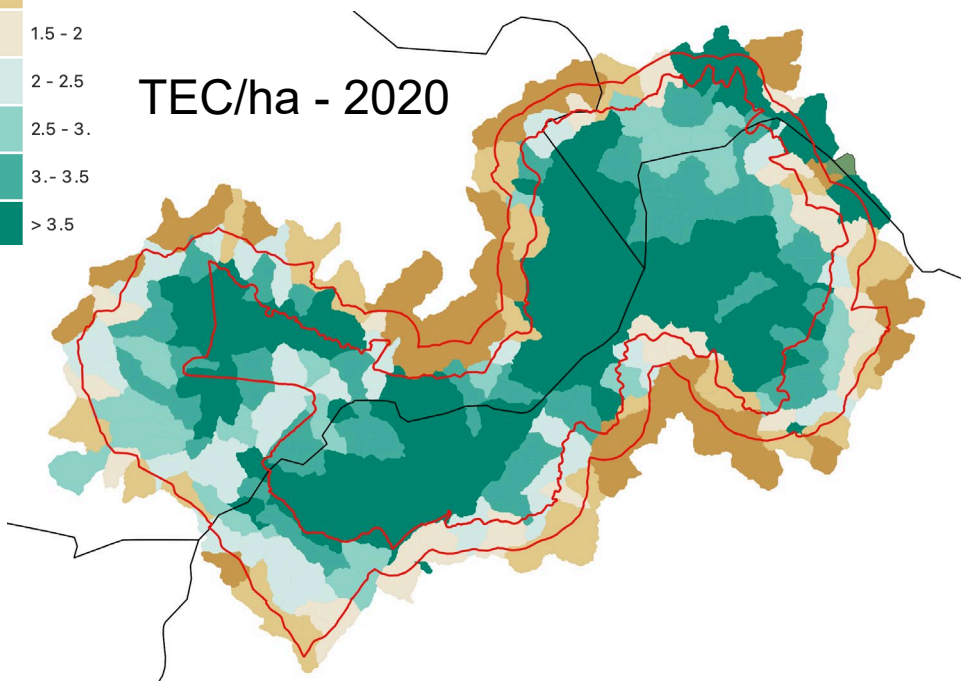
total

- config.yaml
- maps
- reports
- statistics
- temp

- admin_shape_rasterized.tif
- land_cover_2020_100m_EPSG3857.tif
- reporting_shape_rasterized.tif
- statistics_shape_rasterized.tif
- TOTAL_Indices_SELU_2020.gpkg



TEC/ha - 2020

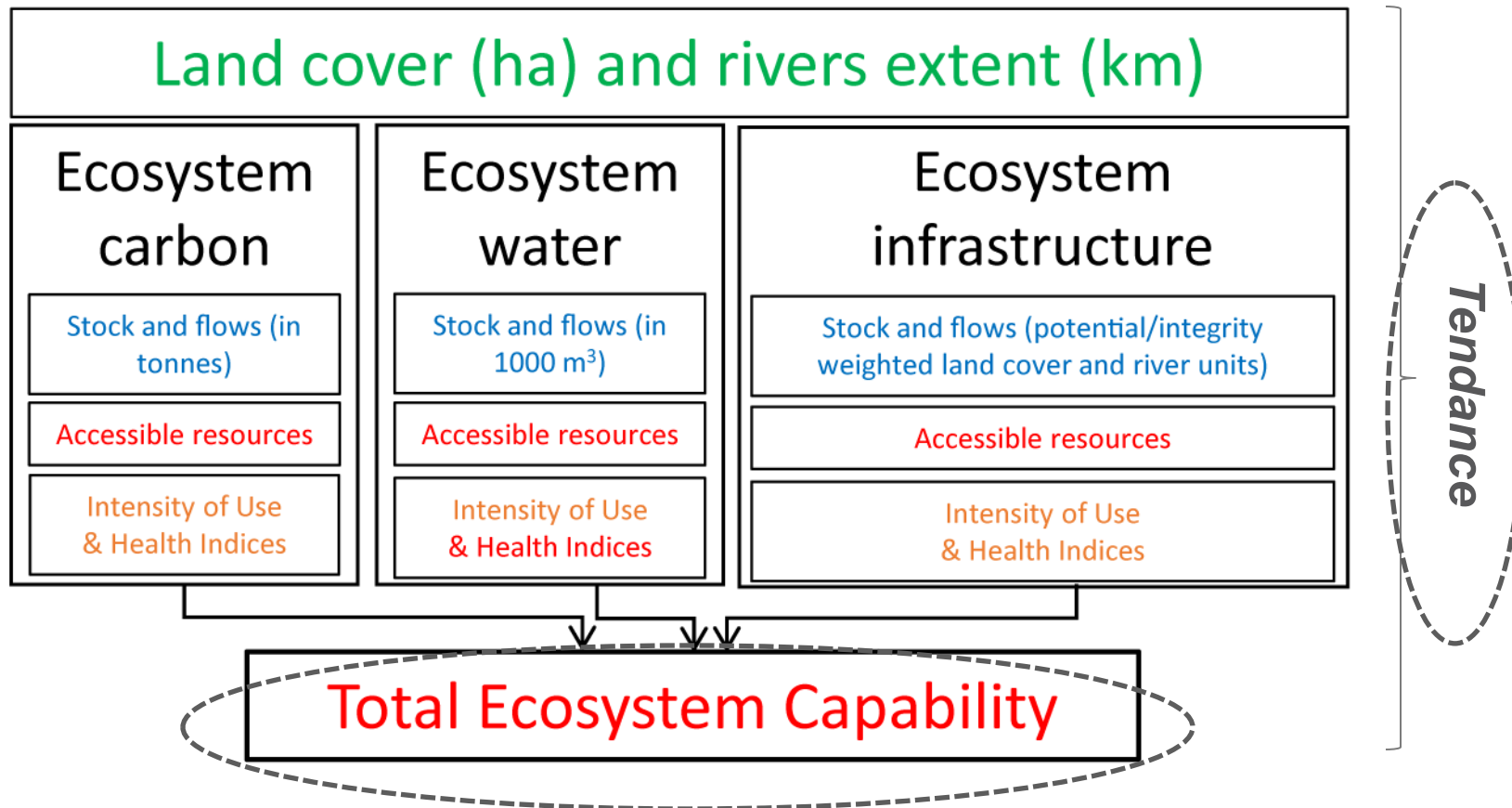


Id	Name	Alias
123 0	fid	In
123 1	HYBAS_ID	In
123 2	NEXT_DOWN	In
123 3	NEXT_SINK	In
123 4	MAIN_BAS	In
1.2 5	DIST_SINK	Dt
1.2 6	DIST_MAIN	Dt
1.2 7	SUB_AREA	Dt
1.2 8	UP_AREA	Dt
123 9	PFAF_ID	In
123 10	ENDO	In
123 11	COAST	In
123 12	ORDER	In
123 13	SORT	In
123 14	DLCT	In
123 15	SHAPE_ID	In
1.2 16	Area_rast	Dt
1.2 17	NECP	Dt
1.2 18	SCU	Dt
1.2 19	CEH	Dt
1.2 20	CEIUV	Dt
1.2 21	NEWP	Dt
1.2 22	SIWU	Dt

Actions	Display	Rendering	Temporal	Variables	Elevation	Metadata	Dependencies	Legend	QGIS Server	Digitizing
1.2 23	WEH									
1.2 24	WEIUV									
1.2 25	TEIP									
1.2 26	EISUI									
1.2 27	EIH									
1.2 28	EIIUV									
1.2 29	NECP_n									
1.2 30	NEWP_n									
1.2 31	TEIP_n									
1.2 32	ECU									
1.2 33	C_EC									
1.2 34	W_EC									
1.2 35	EL_EC									
1.2 36	TEC									
1.2 37	C_EC_ha									
1.2 38	W_EC_ha									
1.2 39	EL_EC_ha									
1.2 40	TEC_ha									

La CECN et ses composantes

Accounts for an Ecosystem Unit



Les tendances

- Sorties sauvegardées dans dossier:

... /WAP_output_Sys4ENCA/WAP_Buffer/1/ACCOUNT/TREND/trend

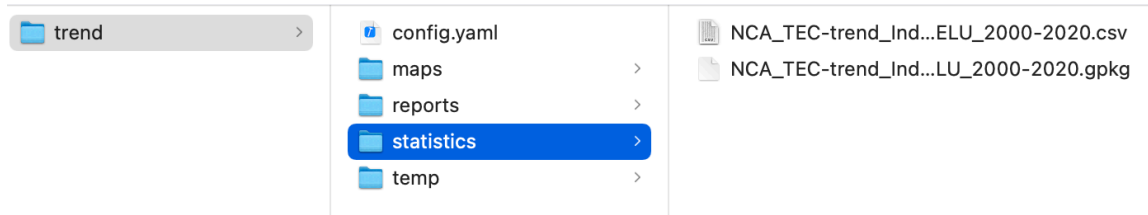
The screenshot shows the ENCA software interface with the following settings:

- Working directory: /Phase_II/QGIS_plugin/plugin/WAP_output_Sys4ENCA
- Study Scope: Year 2020, Spatial Accounting Units: _Sys4ENCA\WAP_buffer_SELU.shp
- Area Of Interest: Reporting area boundaries: A\WAP_buffer_boundaries.shp, Selected area codes: BUF,WAP, Area of interest name: WAP_Buffer
- Administrative boundaries: s4ENCA\countries_WAP_3857.shp
- Landcover map: NCA\cci_LC_2020_100m_3857.tiff
- Tier level: 1
- Preprocessing: Accounts (selected)
- Component: TREND (selected)
- Run name: trend
- Total results: WAP_Buffer/1/ACCOUNT/TOTAL/total/statistics

- Des sorties exemples pour le Total 2000 et 2020 se trouvent dans le dossier:

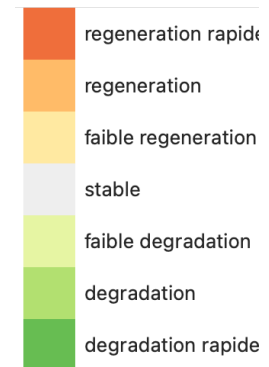
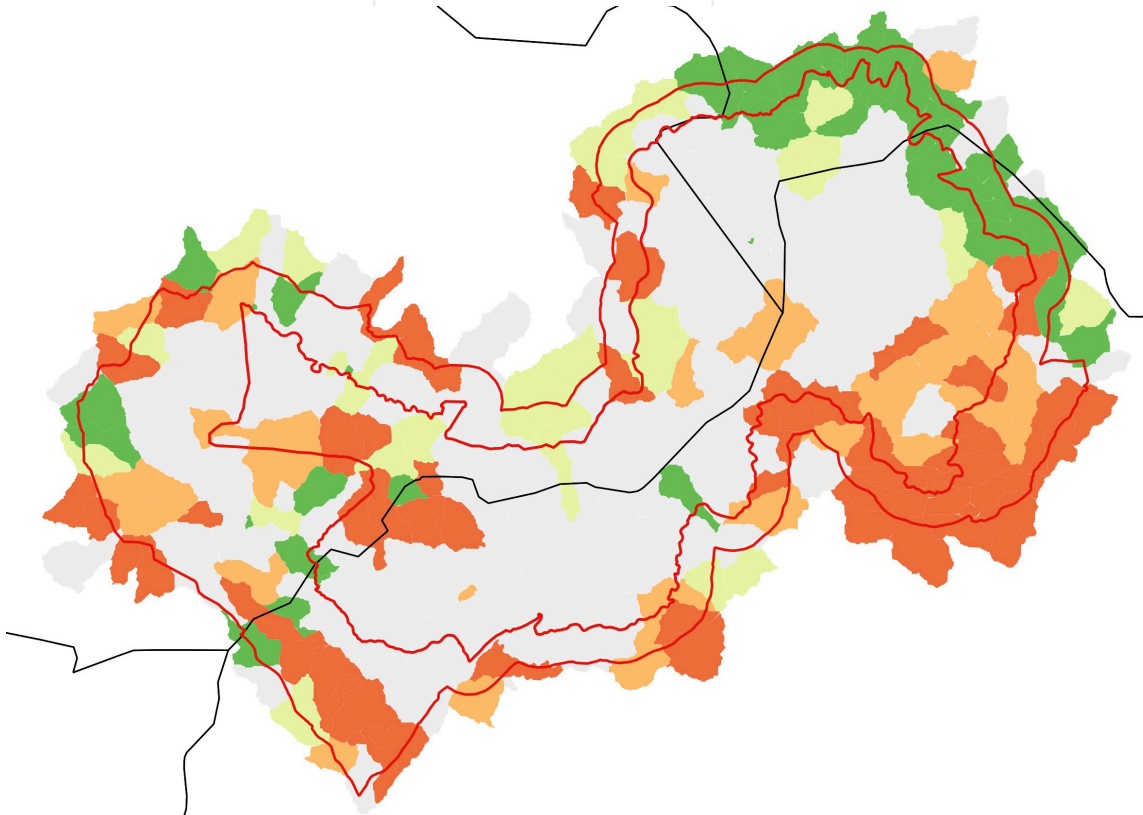
... /WAP_input_Sys4ENCA/Trend/statistics

Exemple de sortie tendance



-> par UPSE

TEC trend 2000-2020



Exercice

Quelle est la capacité écosystémique totale moyenne par ha de la partie du Complexe WAP située au Burkina Faso?

