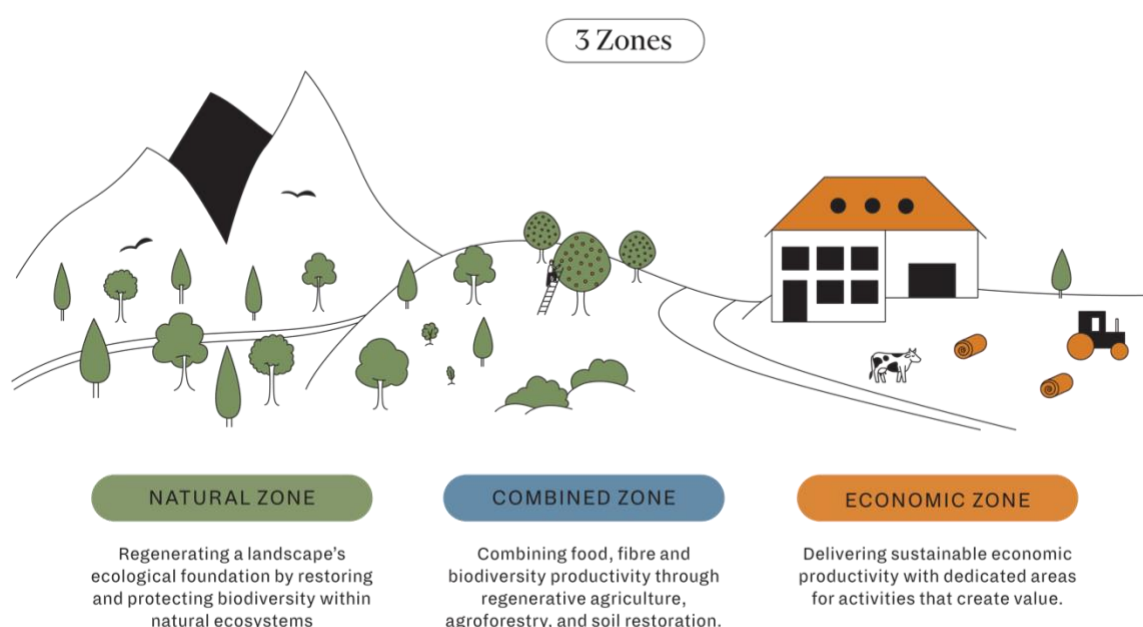


Guidance on defining the 3 zones

Improving your shared understanding of a landscape

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Introduction

This guide builds on the introduction to the 3 zones in the 4 Returns Framework chapter. It aims to enhance the shared understanding of your landscape by providing a clear definition of each zone – natural, combined and economic, and the criteria for each land cover/ land use type. It also provides examples of how these definitions can support the development of maps that distinguish each zone within a landscape. This can contribute to the co-creation of a shared 4R vision for the landscape.

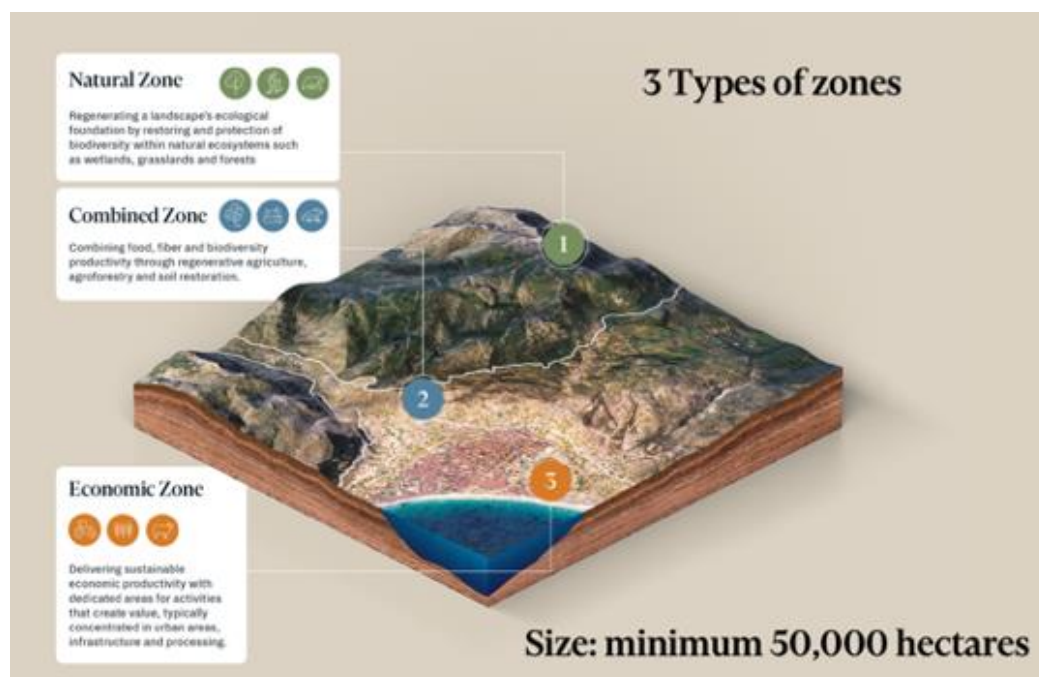
Why the 3 zones?

Within a multi-functional landscape, there will be a diversity of land uses and land covers supporting nature, regenerative production and people. Implementation of restoration activities within a landscape to deliver 4 Return impact requires careful planning and an understanding of the needs of both nature and people within a given landscape. The 3 Zones are intended as guiding principles adaptable to the unique context and restoration objectives

of each landscape. Embracing the 3 zones encourages a shift in the mindset of landscape stakeholders through thinking at the landscape-level to foster a broader understanding of the landscape context to enable spatial planning, prioritization and zoning of activities for short-, medium- and long-term impact. Undertaking a 3 Zones exercise contributes significantly to sense-making within the landscape, aids in visioning and planning, and enhances communication about the landscape.

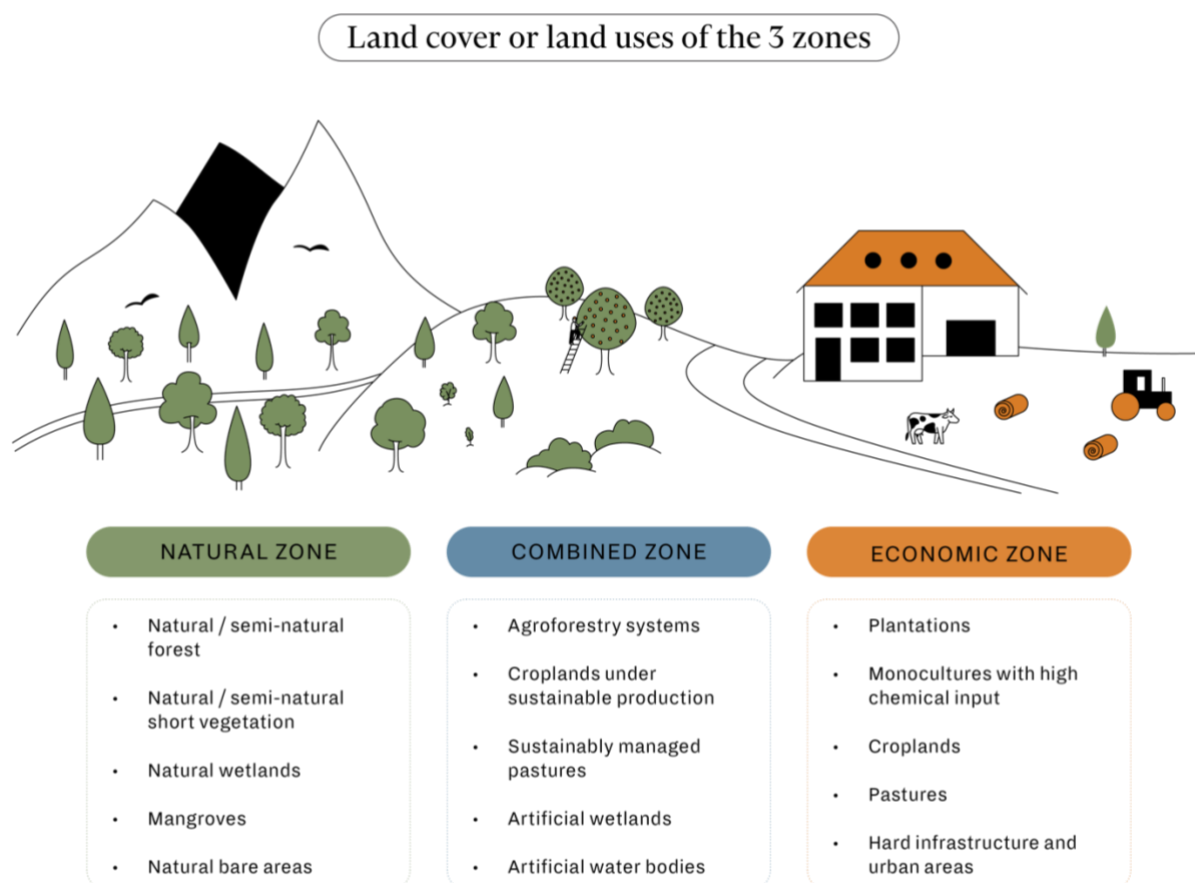
In other words, understanding and defining the 3 zones in a landscape can:

1. **Facilitate a Mindset Shift in Landscape Stakeholders.** As part of the 4 Returns Framework's landscape-level perspective, the 3 Zones aim to bring more clarity to stakeholders on their landscape. The 3 Zones assist in viewing the landscape as an interconnected system, considering various aspects of human activities, conservation, and ecosystem health. It enables a more holistic approach to land-use management and fosters sustainable landscape development.
2. **Help understand the Landscape Context.** Recognizing the diverse nature of landscapes, it is important to define the 3 Zones distinctly within a landscape, making use of the criteria that characterize the 3 Zones. Understanding the 3 zones in your landscape, will contribute to better understand land use and land use change and interconnectedness between different landscape fragments. This 3 Zones perspective into the landscape helps identify priorities and interventions, thus shaping the vision for your landscape.



Definition of the 3 zones: criteria to apply

Several criteria have been used to classify the 3 Zones. These criteria were developed from existing definitions detailed in the 2021 publication 'The 4 Returns Framework for Landscape Restoration', and methodologies such as SBTN Land Cover Classes, the Accountability Framework Initiative Land use / Land cover, IUCN Global Ecosystem Typology and FAO's Land Cover Classification System. Although the criteria are not exhaustive, they can be used to identify the 3 Zones in the context of a specific landscape.



Natural Zones contain natural habitats and ecosystems of predominantly native flora and fauna and well-established ecological systems. This zone has minimal impact from people. Activities within this zone aim to conserve and restore natural habitats, increase connectivity, provide climate change resilience, and improve ecosystem function. These may include protecting existing natural habitat areas, creating corridors to link fragmented areas and supporting biodiversity.

Land cover/ land use	Examples
Natural / semi-natural forest	Tropical/ subtropical/ temperate/ boreal forest
Natural / semi-natural short vegetation	Shrublands, heathlands, grasslands, savannas, steppes, semi-deserts

Natural wetlands	Permanent or seasonal marshes, swamps, peat bogs, fens, flooded forests, peat forests, forested wetlands
Mangroves	Mangrove forests
Natural bare areas	Deserts, sandy shorelines, rocky outcrops, scree, lava flows
Natural surface water	Rivers, lakes lagoons, coastal waters

Combined Zones contain areas that combine both sustainably managed production and ecological regeneration. Activities within this zone co-exist to strengthen each other and aim to rebuild and maintain ecosystem function. This may include the creation of buffer zones and agroforestry areas, improve land management practices and systems, regenerative production systems, reduced inputs, and production diversification.

Land cover/ land use	Examples
Agroforestry systems	Trees sustainably managed together with crops and/or animal sustainable production
Croplands under sustainable production	Annual or perennial croplands managed through regenerative practices
Sustainably managed pastures	Sown pastures, old fields managed through regenerative practices
Sustainably managed artificial wetlands	Rice paddies, small ponds managed through regenerative practices
Sustainably managed artificial water bodies	Canals, storage reservoirs, dams, sustainably managed freshwater or marine aquafarms

Economic Zones include urban and peri-urban areas, some intensive monoculture plantations, industrial sites and infrastructure land cover types that deliver economic production. These zones contain the highest density populations and contain agricultural land cover types that do not include significant natural vegetation or sustainable management practices. Within this zone activities aim to reduce off-site impacts and stress on the landscape.

Land cover/ land use	Examples
Plantations	Monoculture forest plantations, perennial tree crops
Pastures	Intensive sown pastures, old fields, monocultures with high chemical input
Croplands	Intensive annual or perennial croplands, monocultures with high chemical input
Hard infrastructure and urban areas	Cities and peri-urban areas
	Rural settlements
	Transport infrastructure
	Energy infrastructure
	Production sites
	Extraction sites
	Wastelands

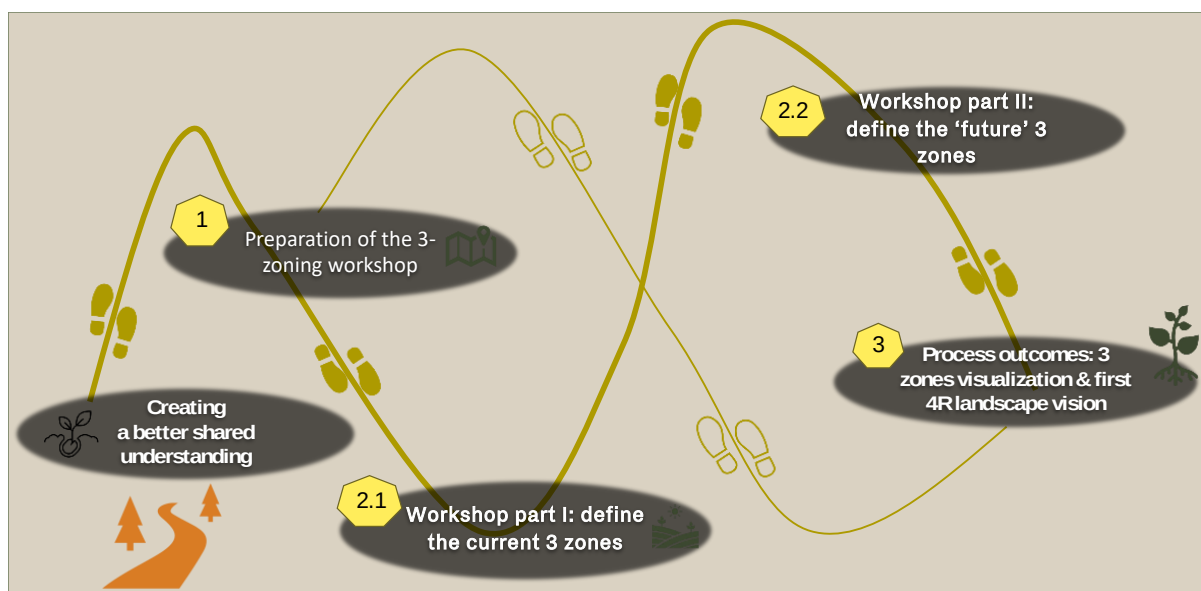
Practical approaches to define the 3 Zones

This guide explores two approaches to conduct a 3 Zoning exercise:

1. Participatory zoning workshop with stakeholders
2. GIS spatial mapping

Both approaches are detailed below and it is discussed how they can support in creating a landscape vision. The outlined steps are derived from insights gained through the execution of a 3 zoning and 4R visioning exercise within landscapes. It is important to note that these processes are not strictly linear: you have all flexibility to alter the order, remove or incorporate additional steps, or make modifications as needed.

Method 1 Participatory zoning



Step 1 Preparation of the 3-zoning workshop.

Invite stakeholders for a workshop

As a first step, it is recommended to start thinking about the practicalities of the workshop. Things to consider are: who are you going to invite? To not make the group too big and allow for discussion, it is recommended to invite approximately 5-10 diverse stakeholders representing various aspects of the landscape. These may include:

- Local Community Representative(s): Individuals residing within the landscape, including farmers, indigenous communities, and local residents, as they possess invaluable traditional knowledge and insights.=
- Government Officials: Representative(s) from relevant government bodies involved in land-use planning, environmental regulation, and policymaking.
- Conservation Organization(s): Members from conservation groups or NGOs involved in environmental protection, biodiversity conservation, and sustainable development within the landscape.

- Business Representative(s) and landowners or land managers: Stakeholders from industries impacting the landscape, such as agriculture, forestry, tourism, or mining, or individuals/organizations responsible for managing or owning land within the landscape.
- (Local) researcher(s): Professionals with expertise in landscape ecology, environmental science, or related fields can contribute valuable technical knowledge.

Find a workshop facilitator and location

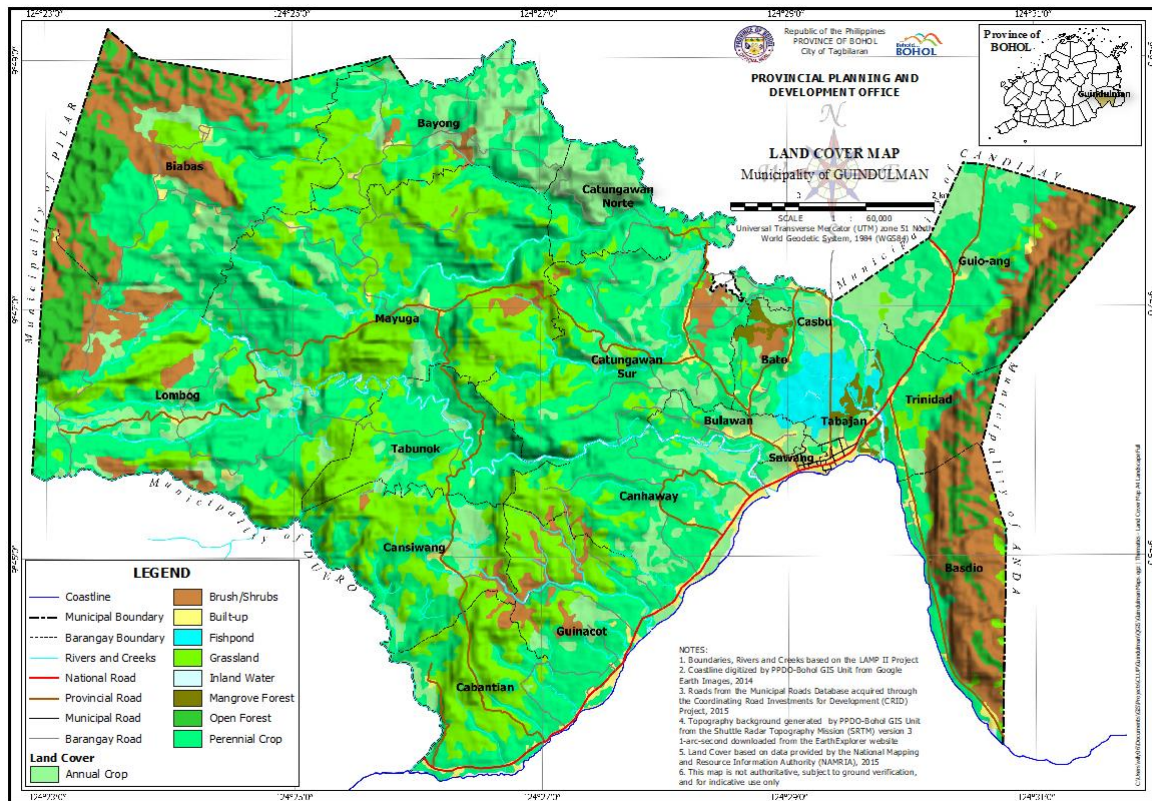
Decide who is going to facilitate the 3-zoning workshop. This could be anyone who is familiar with facilitating multi-stakeholder processes and bringing together stakeholders in a participatory setting, who ideally has some knowledge of the landscape (or comes from the landscape), who has time to prepare for the workshop and process the workshop outcomes. The facilitator could also very well be someone from one of the initiating organizations of landscape restoration initiative. Preferably, stakeholders gather in a face-to-face setting for the workshop. Basically, any location or room that could host the group of people suffices, and there should be room to hang maps and write on flip overs.

Create thematic maps of the landscape

To run the workshop, different thematic maps of the landscape need to be collected or created (and printed!) that provide input to define the 3 Zones. It is recommended to research openly available (governmental) maps or data to create maps. Any map that shows attributes related to the criteria that define the 3 Zones are helpful. But at least, two maps are needed:

- Aerial picture of the landscape (e.g. made by a satellite. Google maps satellite could already work) → print 2 in case you also want to draw the future vision of the 3 Zones
- Land cover maps, incl. (different types of) agricultural cultivations, rural/urban settlements, nature areas, and other land uses

Print the maps (at least an aerial picture and land cover map) on a large piece of paper (e.g. A0 size) and find a place to host the workshop where you can hang or lay down the maps. Carefully read and prepare step 2 'Workshop to define the 3 Zones', to prepare for the workshop.



Picture: Land cover map of Barangar as an example (retrieved from <https://ppdo.bohol.gov.ph/>)

Step 2.1 Workshop part I- define the **current** 3 Zones

Once you have invited stakeholders for a workshop, found a workshop facilitator and a location, and created thematic maps of the landscape, you are ready to have the workshop.

Obviously, you can modify the program the way you like, but the following agenda could provide guidance in organizing this session.

Introduction

- **Describe and present the 3 zones approach** to the workshop participants, the criteria that define the 3 zones, and the motivation to do a 3-zoning exercise.
- You could ask participants on their **expectations and hope for the workshop**.

Workshop part 1: discuss and define current position of 3 zones

- Show and introduce the printed **thematic maps**.
- **Write down characteristics of the 3 zones** in the landscape based on input from all participants. You could do this zone by zone. You can use the table below as inspiration. You could write down the upper row and first column on a flip over and ask participants to provide input per zone.
- **Draw the current position of the 3 zones.** Make use of the aerial landscape picture or land cover map, and roughly draw the location of the 3 zones based on the defined characteristics per zone. You could either request a participant to draw the

boundaries of the 3 zones or let the facilitator draw. Give all participants the opportunity to comment and adjust boundaries. Discuss (and note down) the arguments for defining or adjusting zones.

- **Discuss the results** to get a shared understanding about the 3 zones in the landscape. Allow for nuances, doubts, or other comments.

	Natural zone	Combined zone	Economic zone
Criteria	<i>Write down criteria that apply to this zone</i>	<i>Write down criteria that apply to this zone</i>	<i>Write down criteria that apply to this zone</i>
Land uses	Dense forest, open forest, forest plantations	Sand, lake, wasteland, drainage / waterbody, scrub	Agriculture, built-up, aquaculture, degraded forest / stone quarry, airport
Style of management	Extensive	Semi-intensive	Intensive
Primary focus/driver	Biodiversity	Soil health, economic	Return of jobs
Purpose of the zone	To protect and extend above-ground biodiversity to provide habitat for native plants and animals. The nature zone does not have an economic return from direct farming activities but may attract financial returns from carbon and biodiversity credits.	Protect, strengthen, and expand the combined zone. Large-scale transition to regenerative agriculture, self-organization of partners. New economic activity for the benefit of the combined zone, a support base among citizens. And involving the citizens, economically in the transition in this zone.	Growth of intensive dairy farms. Sharing knowledge and innovation about regenerative agriculture. 25% of what is consumed in the city comes from the region.
Management action	Restoration	Rehabilitation	Restoration
Interactions with other zones	- Main interaction is with the surrounding agricultural land	- The combined zone is very depended on biodiversity in the dense forest	- The economic zone is currently very isolated from the surrounding zones
Investment needed towards	- Restoring vegetation - Clearing invasive alien species - Soil erosion control - Fire management - Basic infrastructure maintenance	- Rehabilitating vegetation cover - clearing invasive alien species - Soil erosion control - Fire management - Basic infrastructure maintenance - - Grazing management	- Soil preparation - Cultivation - Processing and marketing
Types of returns	- Provision of clear water - Habitat for unique flora - Stable climate - - Restored natural area	- Healthy soils - Water - - Biodiversity	- Sustainable business cases - Supply and value chains - Market demand for 4 returns

			- products & services
Other characteristics			
Notes			



Step 2.2 Workshop part II- define the **future** 3 Zones

Workshop part II (if desired, input for creating a Landscape Vision): 20-year vision on 3 Zones

- Introduce the next part of the workshop: 20-year vision on the 3 zones.** From the maps where the current position of the 3 zones are drawn, start thinking about the future, 20 years from here. You can use the table below as inspiration, collect ideas and input from all participants, and write down the 20-year vision on the 3 zones on a flip over. Also hang the table you created in part 1 on the wall so the workshop participants can still see this. You can use the questions below to steer the discussion:
 - How would the 3 zones ideally be characterized 20 years from now?
 - Which returns are ideally provided in 20 years per zone?
 - Which key interventions of changes does this require?
 - Bridge to drawing the 20-year vision on the 3 zones: Would the location of the 3 zones change, how?
- Draw the future position of the 3 zones.** Make use of another aerial landscape picture or land cover map, and roughly draw the location of the 3 Zones 20 years from now based on the defined key changes per zone. You could either request a participant to draw the boundaries of the 3 zones or let the facilitator draw. Give all participants the opportunity to comment and adjust boundaries. Discuss (and note down) the arguments for defining or adjusting zones.

- **Discuss the results** to move towards a shared vision about the 3 Zones in the landscape 20 years from now. Allow for nuances, doubts, or other comments.

	Natural zone	Combined zone	Economic zone
Key changes in characteristics of the zones 20 years from now	<i>What are key changes in land uses, style of management, primary focus, purpose of the zone, or management actions?</i>	<i>What are key changes in land uses, style of management, primary focus, purpose of the zone, or management actions?</i>	<i>What are key changes in land uses, style of management, primary focus, purpose of the zone, or management actions?</i>
Types of returns ideally provided in 20 years	-	-	-
Which key interventions of changes does this require?	-	-	-
Key challenges	-	-	-
Notes			

Step 3 Process outputs

Process outputs of the participatory workshop. Document all ideas and create a format in the style that you and the participants of the workshop prefer. This will likely take the form the 3 Zones drawn or visualized on a map, but it could be complemented with for example a story, drawing, or video where all participants describe their perspective and ideas on the current and/or future vision of the 3 zones in the landscape.



Method 2: GIS spatial mapping

A 3 Zones map can also be developed making using spatial mapping software. This approach uses satellite images together with spatial data to provide a more accurate visual representation of the current landscape structure, interactions between people and nature, and restoration opportunities across the 3 Zones. Criteria to define the 3 Zones can be used to delineate between land cover to create different spatial layers within the map. Key open-

source spatial data is detailed below and can support practitioners to extract the relevant datasets in the context of their landscape. In addition to the 3 Zones criteria, country specific land classification criteria should also be considered and aligned.

Some opensource datasets to use for basemaps, layers etc include:

- [Google Earth](#)
- [Global Forest Watch](#)
- [Global Mangrove Watch](#)
- [Global Peatland Map](#)
- [World Database on Protected Areas \(WDOA\)](#)
- [Restor.](#)
- [Explorer.land](#)
- [Integrated Biodiversity Assessment Tool \(IBAT\)](#)
- [Key Biodiversity Areas](#)

Different datasets and spatial images will have different resolutions. The resolution of the spatial 3 zone map will be dependent on the restoration goals and the data availability. For example, if the 3 Zone map were to be used as a communication tool, a lower resolution map may be sufficient. If the 3 Zone map were to be used for more accurate activity planning or monitoring purposes, a higher resolution image would need to be created.

Step 1 Creating a spatial visualization of the current landscape

Spatial mapping tools such as ArcGIS (licensed) and QGIS (open source) software can be used to develop a 3 Zone map. Key steps include:

- **Add a basemap.** This may be from an existing dataset or a satellite image. For example, opensource images can be obtained from Google Earth..
- **Add layers to the map using land cover data.** This will aid restoration planning and decision making. Layers are data containing groups of point, line or area (polygon) features. These may come from multiple data sources (see table of open-source datasets below). For example, this may include layers of peatland cover, key biodiversity areas, forest carbon stocks, mangroves etc. **Identify which layer relates to each zone using the 3 Zone criteria.** Create a group layer within your map for each zone, adding applicable layers into each zone group layer to merge the datasets. Layers within a group can be the of the same type of many types, e.g. raster and/or feature.
- **Each zone group of layers can then be coloured or outlined accordingly** to create a useful communication tool for how the 3 Zones look within the landscape. Information within the layers can also be extracted to support restoration planning within each zone.
- **Share map** with key stakeholders for review and comment.

Step 2 Projecting a landscape vision using the spatial mapping of the 3 Zones

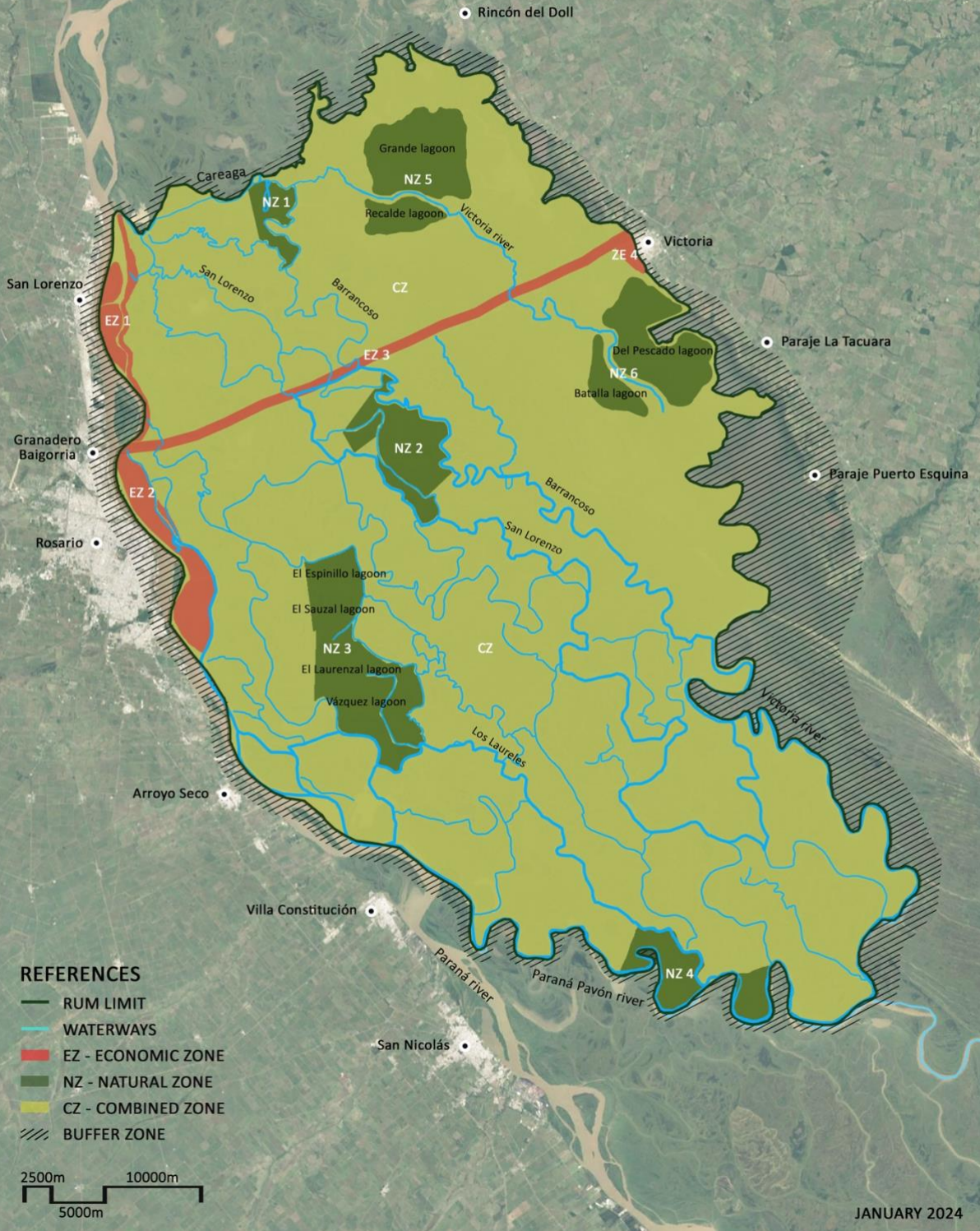
Landscape restoration ambitions defined in landscape visions and landscape propositions can also be visualized with spatial mapping. This can guide practitioners and communicate with local stakeholders the spatial components of a 4 Returns Landscape Plan. For example, projections of the impact of proposed restoration activities on the 3 Zones can be made for 5, 10 and 20+ years. This may include expansion of a combined zone through the creation of buffers around current combined zones or ecological corridors, or the creation of buffer zones around conservation areas to expand natural zones. A landscape vision with an early-stage proposition of interventions needed is required before this step.

Within the 3 Zone map:

- **Expanding Zones.** Using the map of the current 3 Zones created in the step above, buffers can be added to existing zone layers with the proposed distance. This may expand further for projections in years 10 and 20+. For example, if restoration of native forests aimed to expand and/or create a new natural zone over time.
- **Creating corridors between Zones.** New polygons can be added to visualise the development of corridors to connect zones. Other software to support analysis and development of wildlife corridors can also be used to provide more detailed information. For example, if the aim is to expand or increase wildlife corridors between natural zone fragments across the combined zone.
- **Changing management practices.** Data points can be added, for example with an increased number of regenerative farms with a restored natural area within the combined zone.
- **Improving livelihoods/business prospects.** Data points can also be added, for example with the number of funded regenerative businesses within the economic zone.
- **Projected changes** can be visualised per Zone to allow for clarity on the impact of specific restorative activities. The projected changes in each Zone for specific years can also be combined into one landscape map to illustrate the overall impact at landscape scale.

These spatial maps can be used to communicate with stakeholders and investors to illustrate the impact of the proposed restoration activities over the whole landscape as well as within each Zone.

VICTORIA'S WETLANDS AND ISLANDS LANDSCAPE



Case study: Waterford, Ireland

In the bioregion of Waterford, Ireland, detailed mapping was conducted using CORINE Land Cover 2018 data, which encompasses 35 land cover categories from the Copernicus Land Monitoring Service. The mapping process employed a minimum mapping unit (mmu) of 25 hectares and a minimum feature width of 100 meters.

These land cover categories were further classified into three distinct zones: Natural, Combined, and Economic, offering insights into the current state of each zone within Waterford.

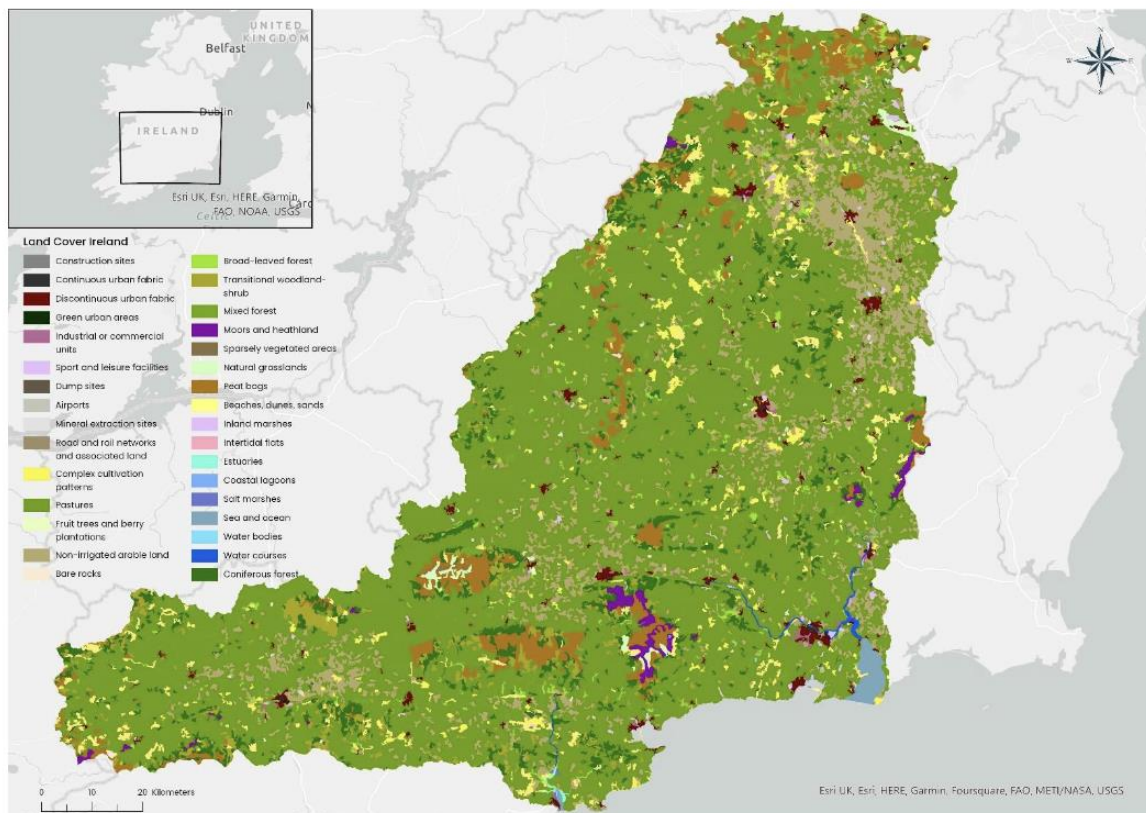


Figure : Land Cover map showing 35 land cover categories in the Waterford Bioregion using CORINE Land Cover data from Copernicus.

Subsequently, three additional maps were generated, each focusing on one of the three zones. The Natural zone predominantly consists of "natural" and unmanaged environments, including various water bodies, peatlands, and forested areas, typically characterized by minimal human intervention. So, these are assumed to be less intensively managed or unmanaged environments.

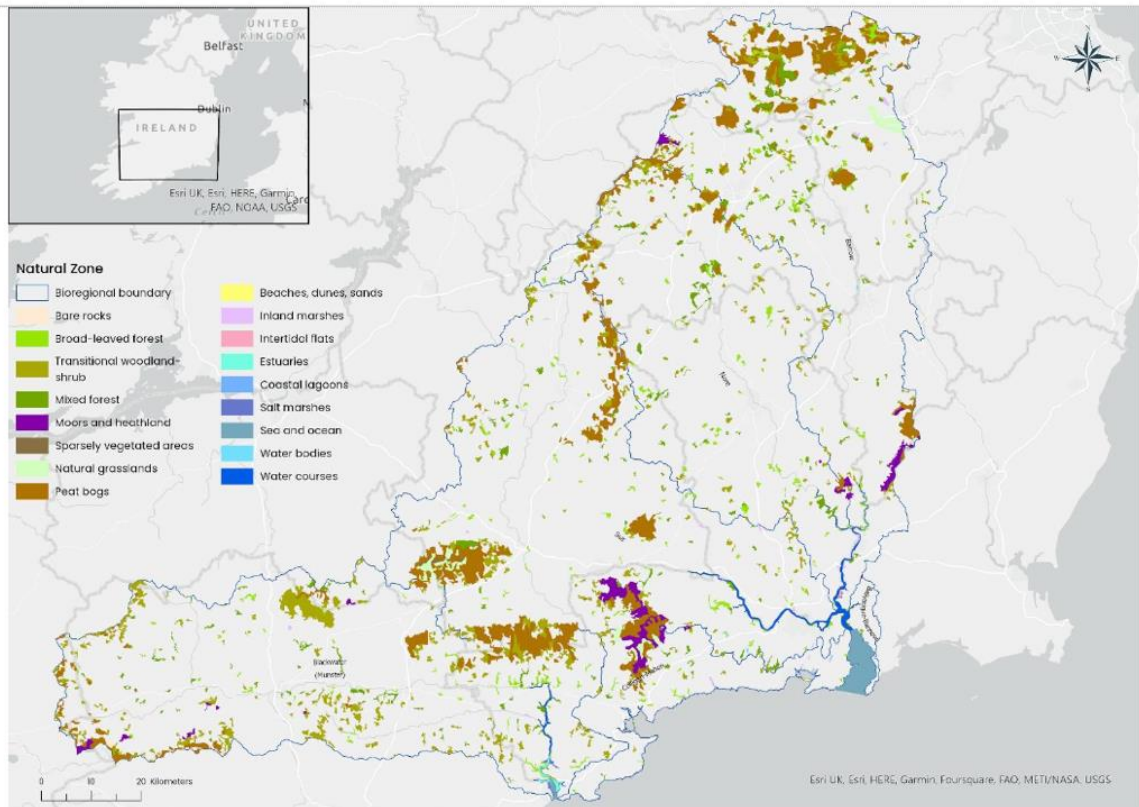


Figure : Land cover categories classified as 'natural zone'.

In the Combined zone, agricultural land occupies a significant portion, with significant areas of natural vegetation. Burnt areas represent a minor fraction of this zone, encompassing a single polygon spanning 157 hectares.

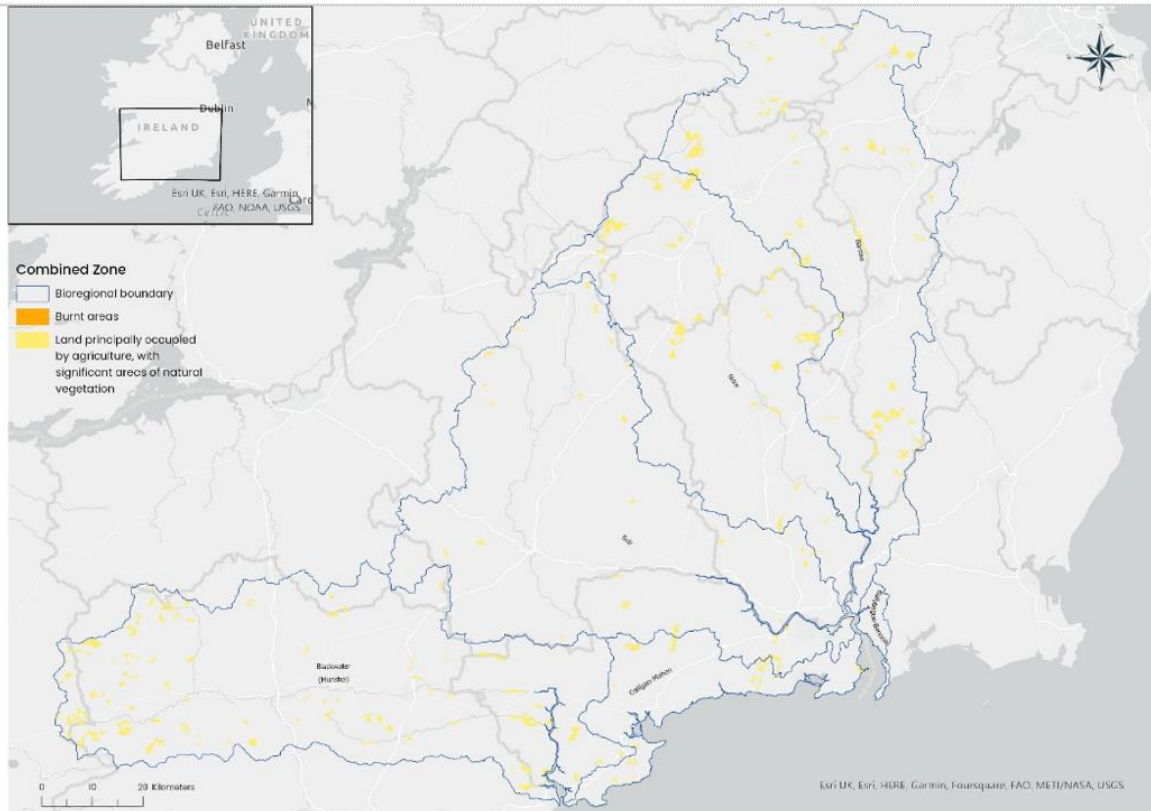


Figure : Land cover categories classified as 'combined zone'.

Within the Economic zone, pastures emerge as the prevailing agricultural land cover category. As there is not a more detailed breakdown of the types of farming that constitute this pasture land, it is presumed that these pastures entail more intensive agricultural activities. Additionally, coniferous forests are classified under the Economic zone, primarily consisting of managed monoculture forests dominated by non-native conifer species, such as Sitka spruce, which currently constitutes approximately 70% of Ireland's forested land.

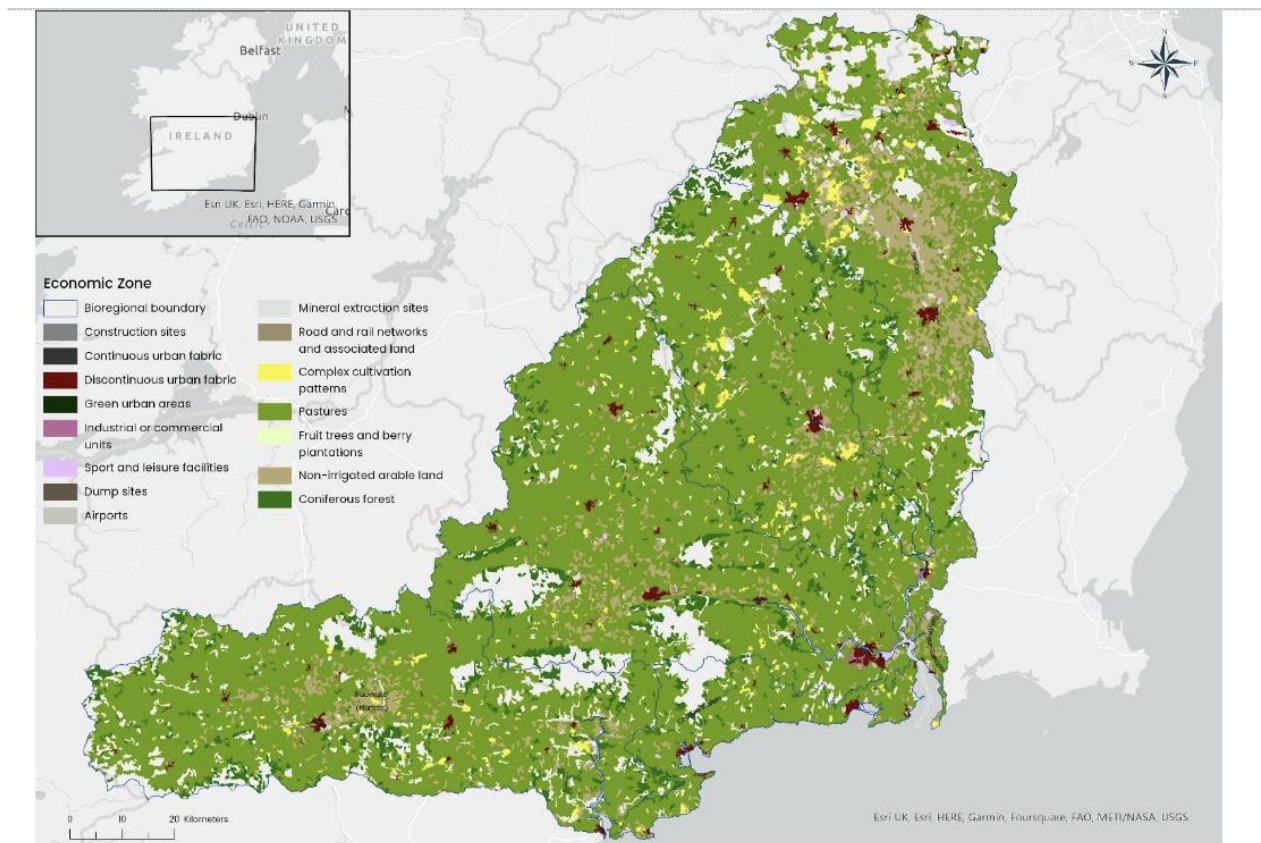


Figure : Land cover categories classified as 'economic zone'.

Having classified all land cover categories into the three distinct zones, a map could be created that shows the location of the 3 zones in the landscape. This map offers insights into the current state of each zone within Waterford.

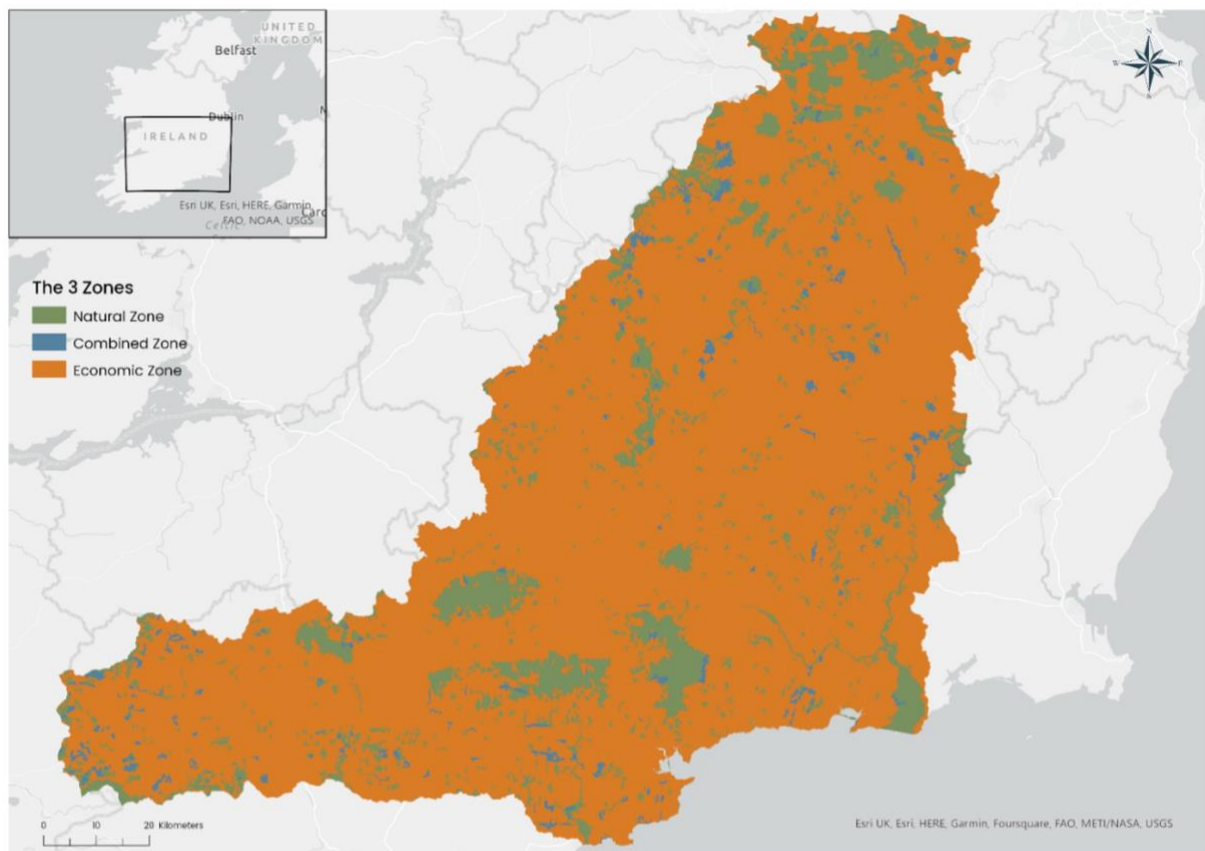


Figure 1: A first draft 3 zone map showing the natural, combined, and economic zones of the Bioregion of Waterford, Ireland. Created using the CORINE Land Cover data categories from the Copernicus Land Monitoring Service.