

Application case: EB-ICZM for Tyre Coast Nature Reserve
Report type: Thematic Scoping for Application Case (System Matrix)
Issued on: 30-09-2020
Issued by: Tyre Coast Nature Reserve



Mediterranean Forum For Applied Ecosystem-Based Management



Item	Description	Key management issues	Key stakeholders
biophysical systems	<p>=> Identify each of the main components which constitute the key coastal and marine biophysical systems (e.g. climate; hydrological and hydrogeological system; coastal vegetation types; wetlands; mangroves; rocky coast; dunes and beaches; marine prairies; coral reefs, cayos).</p> <p>=> Use one line for each of the components (and add as many lines as needed).</p>	<p>=> Identify the most important management issues (e.g. resource uses and/or conflicts; ecological problems/threats) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one bullet (=>) for each of the management issues (and add as many lines as needed).</p>	<p>=> Identify the most important stakeholders (e.g. institutional management, data provider, resources user) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one bullet (=>) for each of the stakeholders (and add as many lines as needed).</p>
wetland	Wetland is designated as Ramsar site.	Presence of an invasive plant species "Heterotheca subaxillaris", spreading at the expense of the natural wetland flora, and threatening the ecosystem's well being.	Institutional management (TCNR management team). Scientific expertise (flora experts).
Springs of Ras El Ain	Springs are located in n the Agricultural zone of the reserve, provide domestic water to Tyre city and its suburbs, irrigation water to Ras El Ain lands, and flow out into the sea constituting an Estuary, due to the mixture of salt and fresh waters.	A. Pollution with agrochemicals B. Possible leakage of formal dumpsite's leachates to the groundwater sources of Ras El Ain.	Farmers (A). Union of Tyre Municipalities (B). OMSAR (B). Ministry of Environment (B). Institutional management (TCNR management team) (A & B).
Sand Dunes ecosystem	Located in the conservation zone, with well-established relative vegetation. Important nesting site for sea turtles (Caretta caretta).	Disturbance and vandalism by trespassing polluters. Disturbance from the adjacent touristic zone's activities.	Institutional management (TCNR management team). Municipality of Tyre. Ministry of Environment. International organizations involved in endangered sea turtles' conservation (SPA RAC; IUCN; MedPAN).
sandy beach	The most beautiful and cleanest public beach in Lebanon.	Size of visitors during the beach season overcoming the carrying capacity of the touristic zone, stretching beyond the region covered by the 50 permitted kiosks (temporary hut-restaurants) by Ministry of Environment to both sides (northern and southern sides of the beach uncovered by the kiosks' services) by independent tourists who don't abide by the eco-rules imposed on the owners of the kiosks exploiting the beach during the summer.	Institutional management (TCNR management team). Municipality of Tyre. Ministry of Environment.
plant species	<p>=> Identify key groups of species which, for any reason, are of particular interest for the management of the focused ecosystems (e.g. endemic; threatened; invasive; commercial. Note that plant-communities/habitat may be already included under Vegetation-Types).</p> <p>=> Use one line for each of the group (and add as many lines as needed).</p>	<p>=> Identify the most important management issues (e.g. resource uses and/or conflicts; ecological problems/threats) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the management issues (and add as many lines as needed).</p>	<p>=> Identify the most important stakeholders (e.g. institutional management, data provider, resources user) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the stakeholders (and add as many lines as needed).</p>
rare / threatened species	Ficus sycomorus. Pancreatimum maritimum.	Depend on the sand dunes' habitat, which is degrading on the national level, hence became threatened species.	Farmers of Ras El Ain/TCNR agricultural zone (for F. sycomorus). Visitors/Trespassers of the Conservation zone where P. maritimum is found. Institutional management (TCNR management team). Ministry of Environment.
endemic species	Astragalus berytheus.	Endemic to the Lebanese and Palestinian sea shores, with habitat as sand dunes that aren't found but in TCNR in Lebanon.	Institutional management (TCNR management team). Ministry of Environment.
invasive species	Heterotheca subaxillaris.	Wind-transported seeds from Palestine. Well established in the sand dunes of TCNR's Conservation zone.	Institutional management (TCNR management team). Scientific/Academic expertise (flora experts).

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animal species	<p>=> Identify key groups of species which, for any reason, are of particular interest for the management of the focused ecosystems (e.g. endemic; threatened; invasive; commercial).</p> <p>=> Identify also key groups/taxa which are important in the structure of the relevant ecosystems and related services (e.g. mammals, marine and terrestrial; fishes).</p>	<p>=> Identify the most important management issues (e.g. resource uses and/or conflicts; ecological problems/threats) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the management issues (and add as many lines as needed).</p>	<p>=> Identify the most important stakeholders (e.g. institutional management, data provider, resources user) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the stakeholders (and add as many lines as needed).</p>
mammals	<p>1 rare (Acomys dimidiatus/Spiny mouse). 4 endemic (Pipistrellus kuhli ikhawanius/Kuhl's Pipistrelle; Rhinolophus euryale judaicus/Mediterranean Horseshoe; Vormela peregusna Syriaca/Marbled Polecat; Vulpus vulpus palaestina/Red Fox). 3 Threatened (Pipistrellus kuhli ikhawanius/Kuhl's Pipistrelle; Rhinolophus euryale judaicus/Mediterranean Horseshoe; Vormela peregusna syriaca/Marbled Polecat).</p>	<p>Rare: declining due to heavy persecution and loss of habitat. Endemic: Caves in adjacent hills and ravines (Kuhl's pipistrelle and Med. Horseshoe); Various habitats from sea level to 1450 m (Marbled Polecat); Various habitats from sea level to 2000 m. (Red fox). Threatened: Threatened at Global & Regional levels.</p>	<p>Researchers & Universities (monitoring & evaluation). CNRS - Lebanon (monitoring & evaluation) Institutional management (TCNR team – M&E and conservation). Ministry of Environment (support and coordination of M&E and conservation endeavours).</p>
birds	<p>4 Rare. 5 Endemic. 7 Threatened (globally: Falco naumanni/Lesser Kestrel; Crex crex/Corncrake. Regionally: Glareola nordmanni/Black-winged Pratincole; Pycnonotus xanthopygos / Bulbul; Botaurus stellaris/Bittern; Ciconia ciconia / White Stork; Serinus syriacus/Syrian Serin).</p>	<p>All stakeholders referenced in the next column have consorted to conduct a monitoring and study of TCNR's birds, which resulted with a recommendation for "BirdLife International" to designate the reserve as an Important Bird Area (IBA), as found qualified for this designation. The process is ongoing.</p>	<p>Researchers/Bird experts (Dr. Ghassan Jaradi) IUCN (donor of study). BirdLife International (Global organization for the conservation of birds). NGOs (SPNL – supervision and coordination) Ministry of Environment (coordination between the donor and the expert researcher, and support for TCNR). Institutional management (TCNR director, field coordination and data support).</p>
reptiles	<p>2 Globally threatened: Chelonia mydas/Green Marine turtle; and Caretta caretta / Logger-head marine turtle. 2 Regionally threatened: Chalcides ocellatus ocellatus / Ocellated skink; and Acanthodactylus shreiberi syriacus / Shreiber's lizard.</p>	<p>Both sea turtles (Green turtle and Loggerhead) are globally threatened mainly due to anthropogenic reasons (beach littering, marine pollution, accidental catch, noise and light pollutions, disturbance, egg harvesting), climate change, and degradation of nesting sites (sandy beaches) and habitats (Posidonia meadows).</p>	<p>Ministry of Environment Institutional management (TCNR management team/monitoring, protection and awareness) International organizations: SPA RAC, MedPAN, IUCN, EU/ENI CBC MED Program (funding, training, technical support).</p>
coastal infrastructures	<p>=> Identify the main groups/category coastal infrastructures (e.g. ports; marinas; hotels; road network; urban areas; irrigation and drainage networks).</p> <p>=> Use one line for each of the groups/categories (and add as many lines as needed).</p>	<p>=> Identify the most important management issues (e.g. ecological problems/threats related to the given infrastructure) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the management issues (and add as many lines as needed).</p>	<p>=> Identify the most important stakeholders (e.g. institutional management, data provider, user of the infrastructure) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component.</p> <p>=> Use one line for each of the stakeholders (and add as many lines as needed).</p>

Tyre fishermen port		Pollution of the harbour. Some illegal fishing still exists. Non sustainable fishing practices need better control.	Ministry of Public Works & Transport. Ministry of Agriculture (marine patrol). Lebanese Army (navigation security). Tyre municipality (law enforcement regarding illegal fishing - marine patrol). Institutional management (TCNR marine guards).
hotels and restaurants on the coastal line		Solid waste and wastewater management.	Tyre municipality (solid waste collection & wastewater network and treatment plant operation). NGOs (waste management initiatives). Institutional management (TCNR: local community support and raising awareness).

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stone ponds	Ras El Ain springs are held in stone ponds built by the Phoenicians (5000 years ago), provide domestic water for Tyre city through irrigation pipes' network, irrigate all Ras El Ain's agricultural lands, and the remaining part flows out to the sea forming an Estuary.	Old and corrupted domestic water network. Possible water source pollution by agrochemicals.	Tyre municipality (water distribution management). Ministry of Public Works & Transport and Council of Development and Reconstruction (funding the replacement of the old network). Institutional management (TCNR experts to collaborate with farmers of Ras El Ain to adopt more sustainable agricultural practices).
economic activities	=> Identify the main sectors of economic activities (e.g. agriculture; livestock; industry; fisheries; aquaculture; energy production; transport; tourism). => Use one line for each of the groups/categories (and add as many lines as needed).	=> Identify the most important management issues (e.g. ecological problems/threats related to the given economic activity) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component. => Use one line for each of the management issues (and add as many lines as needed).	=> Identify the most important stakeholders (e.g. institutional management, data provider, economic actor) and try to associate them with the related "biophysical component" by listing each of them in the same line as that of the related component. => Use one line for each of the stakeholders (and add as many lines as needed).
tourism	TCNR touristic zone, is a public beach, largest and most beautiful sandy beach in Lebanon. Tyre port is also a location for starting diving and sea tours by boats. Hotels and restaurants. Touristic-Archaeological sites (for which Tyre was declared by the UNESCO a World Heritage site) and the submerged old city ruins (accessed by diving).	Seasonality of tourism makes it very concentrated during the summer season, exerting high pressure on the city's infrastructures, and the reserve's ecosystems and eventually its biodiversity. Some touristic activities cause wildlife disturbance/harm to the TCNR biodiversity.	Tyre municipality: management of TCNR touristic zone (beach) during the summer season. Institutional management (TCNR management team). Ministry of Environment : Authority of reference for legal and eco-friendly exploitation of TCNR's touristic zone by the municipality of Tyre. Operators of the huts at TCNR's touristic zone (pay monthly fees against permits provided by Tyre municipality for 4 months to provide culinary and touristic services at the beach of TCNR). Divers, kayak owners, boat owners (diving, sea tours organization by kayak or boat). Hotels and restaurants' owners and operators. Ministry of Culture & Ministry of Tourism (management of Tyre archaeological sites).
agriculture	TCNR agricultural zone in Ras El Ain harboring around 150 Lebanese farmers and 50 Palestinian farmers.	Illegal exploitation of the public lands of TCNR's agricultural zone of Ras El Ain by the farmers. Conventional farming with non-sustainable agricultural practices and use of agrochemicals that might pollute the important water sources of Ras El Ain.	Institutional management (TCNR management team – to initiate dialogue with the farmers of Ras El Ain to start collecting fees for farming the land, and raising awareness to adopt more sustainable agricultural practices). Litan authority (management of the water distribution and the ponds of Ras El Ain).
fisheries	Only artisanal fishing is allowed in the marine zone of TCNR.	Some illegal and non-sustainable fishing activities are still exerted in the marine zone facing Rasheedeh camp for Palestinian refugees, and to a lesser extent, by some Lebanese fishermen across the marine zone of TCNR. Some fishermen still hurt/kill/bycatch sea turtles that they find stuck on their fishing nets because they ruin the nets.	Ministry of Agriculture (Authority responsible of issuing fishing permits and controlling fishing operations) Lebanese Army (controls illegal fishing, especially dynamite-fishing). Cooperative of Tyre fishermen. Institutional management. TCNR & IUCN & MedPAN & ENI CBC MED program (projects and programs of cooperation with and support to fishermen, to adopt and exert more sustainable fishing and less harmful practices to the reserve's marine wildlife, especially vulnerable and threatened species of high value).