INFRASTRUCTURE ANNEX

Strategic Environmental Assessment

Environmental Report

(ex art. 13 Leg. Decree 152/2006)

Annex 3

Report for Assessment of Incidence

January 2016

Contents

1 Introduction

This annex to the Environmental Report related to the Strategic Environmental Assessment applied to the Infrastructure Annex to the Economic and Finance Document 2015 contains the elements for the Assessment of Incidence.

As known, the Assessment of Incidence is a preventive procedure that is applied for the purposes of safeguarding the integrity of areas of the Natura 2000 network.

Natura 2000 is an ecological network spread over the entire territory of the European Union, established pursuant to Directive 92/43/EEC "Habitat" in order to guarantee long-term maintenance of natural habitats and species of threatened or rare flora and fauna at EU level.

In particular it consists of Sites of Community Interest (SCI) identified by the member states as established by the Habitat Directive, which are subsequently designated as Special Areas of Conservation (SACs) and also includes Special Protection Areas (SPAs) established pursuant to the "Birds" Directive 2009/147/EC concerning the conservation of wild birds.

Although there may be a partial or total overlapping of borders in some cases, the areas of the Natura 2000 network are not Natural Protected Areas for the purposes of the relevant national framework law and human activity is not excluded in them a priori insofar as the Habitat Directive aims to ensure the protection of nature while taking “account of economic, social and cultural needs, as well as regional and local characteristics” (Art. 2). Individuals may be owners of Natura 2000 sites, ensuring their sustainable management from the environmental and economic point of view.

For the purposes of pursuing the objectives of protection, implementation of interventions and plans in the context of Natura 2000 areas is allowed following the outcomes of a specific assessment process: the Assessment of Incidence. This assessment is automatically excluded in cases where the activity is explicitly aimed at conservation of the site.

In Italy, the Habitat Directive has been incorporated through Presidential Decree 357/97 and subsequent modifications concerning “Regulation containing implementation of Directive 92/43/EEC concerning conservation of natural and semi-natural habitats, as well as wild flora and fauna” which, through Art. 5, introduces the Assessment of Incidence (often called VINCA).

In particular, in the event that the sites are covered by “plans”, paragraph 2 establishes that:

- The proposers of territorial, urban and sector plans, including agricultural and faunistic-hunting plans and their variants, prepare, according to the contents referred to in Annex G, a study for identifying and assessing the effects that the plan may have on the site, taking into account the objectives of conservation itself. In the case of plans of national importance, territorial planning acts to be subjected to assessment of incidence are submitted to the Ministry of Environment and Territorial Protection, and in the case of plans of regional, interregional, provincial and municipal importance, to the competent regions and autonomous provinces.

On the other hand, in the case of “interventions”, the assessment of incidence is governed by paragraph 3 which provides for:

- The proposers of interventions not directly related and necessary for maintaining species and habitats present in a site in a satisfactory state of conservation, but which may have a significant incidence on the site itself, individually or jointly with other interventions, submit for the purposes of the assessment of incidence a study aimed at identifying and assessing, according to the aims expressed in Annex G, the main effects that said interventions may

have on the proposed site of community importance, on the site of community importance or on the special conservation area, taking account of the objectives of conservation itself.

Presidential Decree 357/97 and subsequent modifications had already established regulations for coordination between the Assessment of Incidence and other assessments of environmental impact. These regulations were updated by Legislative decree 152/06 which established the integration between the Assessment of Incidence and the EIA (in the case of interventions) and the SEA (in the case of plans).

The integration between SEA and Assessment of Incidence procedures is allowed by Legislative decree 152/2006 and subsequent modifications, and explicitly by Article 10 on "Regulations for the coordination and simplification of procedures", paragraph 3 of which sets out that in the drafting of the Environmental Report the SEA should also include the procedure for the Assessment of Incidence referred to in Art. 5

The nature of the Infrastructure Annex does not appear to fit with the definition provided for by paragraph 2 of Art. 5 of Presidential Decree 357/97 (territorial, urbanistic and sectorial plans) insofar as it does not exercise direct power of transformation of land. In fact, in this regard, there are opinions according to which the VINCA is not applicable in case such as those in question.[1] Nevertheless, verification of the relations between the Infrastructure Annex and Natura 2000 sites was in any case deemed necessary

This document provides a response to this need, adapting the standard of the Assessment of Incidence studies to the specificity of the case, thus making it possible to provide the decision-maker with sufficient elements for understanding the relationships between AI and Natura 2000 Sites with levels of exercisable investigation in this phase, also highlighting the precautions and attention to be observed in the implementation phase in relation to the risk of incidence on Natura 2000 sites.

Therefore, starting from a methodological framing of the issue, the following pages describe the typical sequence of an assessment of incidence, which envisages:

- description of the subject of assessment;
- description of the context concerned which, through coincidence with the entirety of Italian territory, implies a very general information report on the consistency and characteristics of the Italian Natura 2000 Network;
- assessment, proposing an indication adapted to the scale and type of the subject of assessment.

[1] In the contribution sent in the scoping phase of the SEA, the Veneto Region recalls attention to the field of applicability of the VINCA, stating that if, as for the AI, the document to be assessed is not equivalent to a plan for the structure (rules and maps), type and mode of implementation from which the measurable effects on the territory can be implemented, pursuant to article 5 of the Presidential Decree No. 357/97, the VINCA must be carried out as part of the authorisation/approval procedure for the projects that results from the programmes in question (cf. contribution referred to in the communication to MIT of 21/09/2015, prot. 376562).

2 Methodological aspects and limits of application

2.1 Annex G to Presidential Decree 357, manuals and guidelines

The Assessment of Incidence is performed on the basis of that which is required by Annex G to Presidential Decree 357/97 and subsequent modifications. This defines the following contents of the study for the Assessment of Incidence of plans and projects:

1. Characteristics of plans and projects

The characteristics of plans and projects should be described with particular reference to:

- type of actions and/or works;
- dimension of scope of reference;
- complementarity with other plans and/or projects;
- use of natural resources;
- production of waste;
- pollution and environmental disturbance;
- risk of incidents concerning substances and technologies used.

2. Wide area of influence of plans and projects – interference with the environmental system

The interference of plans and projects should be described with reference to the environmental system, considering:

- abiotic components;
- biotic components;
- ecological connections.

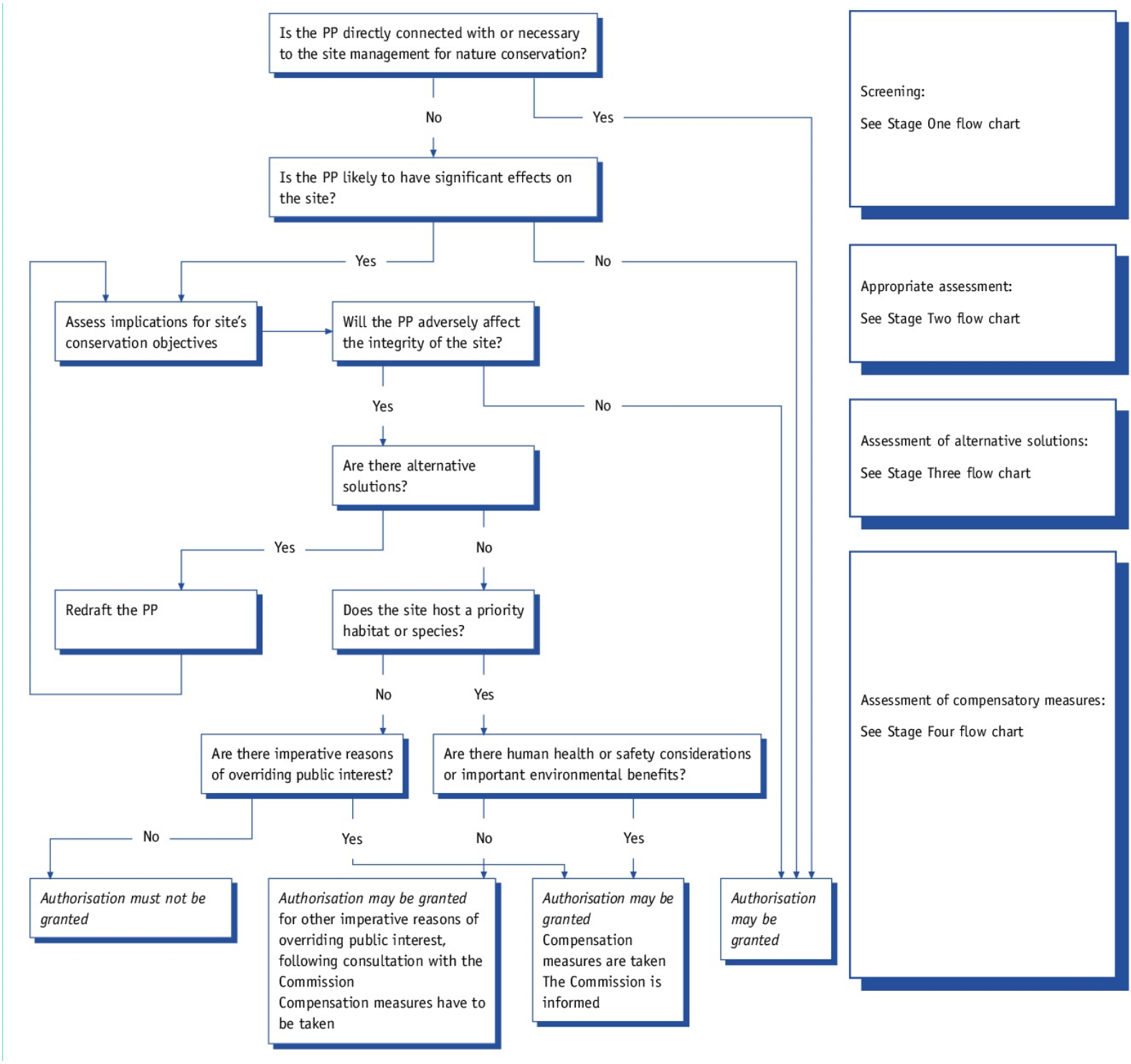
Interferences should take into account the quality and capacity of regeneration of the natural resources of the area and the load capacity of the natural environment with minimum reference to the project mapping.

Even if expressed in a very summary manner, the requirements of Annex G in fact imply an intense activity of analysis and assessment that is often outlined in manuals, guidelines and other dedicated measures. These instruments certainly include the EC document on “Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC', EC, 11/2001” prepared in 2011 by the Oxford Brookes University.

Rather than addressing the proposer, these guidelines appear to be addressed to the Competent Authority which has to give its opinion from the viewpoint of constant comparison with the Proceeding Authority. Also, these guidelines are followed for the purpose of drafting technical documentation.

Interpreting and amplifying the provisions of the Habitat directive, the manual envisages that the assessment process should follow a complex schema, summarised in ***Fig. 1,*** in which the progression of assessments according to the type of Project or Plan (PP) is highlighted, as well as the nature of possible incidences, prefiguring pathways that run from the most favourable option for the proposer, or the non-submission of the PP to real assessment, to the least favourable option of absolute refusal.

Fig. 1 – Procedural schema of the Assessment of Incidence



The manual assumes that the assessments required by Article 6 are to be carried out by levels. In particular, the following levels are defined:

Level 1: *Screening.* Process of identifying the potential implications of a project or plan for a Natura 2000 site, individually or jointly with other plans or projects, and establishment of the potential degree if importance of such incidences.

Level II: *appropriate assessment*. Consideration of the incidence of the project or plan on the integrity of the Natura 2000 site, individually or jointly with other plans or projects, taking account of the structure and function of the site, as well as its conservation objectives. In the event of negative incidence, establishment of the possibility of mitigation is also added.

Level III: *assessment of alternative solutions.* Assessment of alternatives modes for implementing the project or plan capable of avoiding the effects liable to prejudice the integrity of the Natura 2000 site.

Level IV: *assessment in the event of absence of alternative solutions where negative incidence remains.* Assessment of compensatory measures where, following positive outcome of the assessment of prevailing motivations of relevant public interest, it is considered necessary to continue with the plan or project.

The manual thus provides methodological details of the type of analysis to be performed for each further and in-depth phase.

For example, in the *screening* phase, the possible incidence that a project or plan may have on a Natura 2000 site is analysed, both individually and jointly with other projects or plans, assessing whether such effects may objectively be considered irrelevant. This assessment has four phases:

1. Establish whether the project/plan is directly related to or necessary for management of the site.
2. Describe the project/plan together with a description and characterisation of other projects or plans which, together, may affect the Natura 2000 site in a significant way.
3. Identify potential incidence on the Natura 2000 site.
4. Assess the significance of eventual effects on the Natura 2000 site.

By way of example, this involves:

a) for that which concerns analysis of the project, the collection of information and data on:

- Dimensions, entity, area, occupied surface, etc.
- Plan sector
- Physical changes that result from the project/plan (excavations, foundations, dredging works)
- Resource requirements (extraction water)
- Emissions and waste (elimination into the ground, water or air)
- Transport needs
- Duration of the building phases, functioning and demolition
- Implementation period of plan
- Distance from the Natura 2000 site or main features of the site
- Cumulative impact with other projects/plans

b) for that which concerns the site, the production of information on:

- Standard Natura 2000 site-related data module
- Historical or available maps
- Use of land or other relevant available plans
- Existing site survey material
- Available hydrogeological data
- Available data on main species
- Environmental statements for similar projects/plans situated in other areas
- Status of environmental relationships
- Site management plans
- Geographic information system
- Historical site archives

c) for that which concerns assessment of use of indicators, including for example:

- Loss of habitat areas (percentage loss)
- Fragmentation (on expiry or permanent, level in relation to original entity)
- Disturbance (on expiry or permanent, distance from site)
- Population density
- Water resources (relative variation)
- Water quality (relative variation in main chemical compounds and other elements)

Clearly, in subsequent phases of assessment, the level of information required increases further.

2.2 Possibility of application in the event of examination

The preceding pages have described the main methodological references drawn on in ordinary situations for drafting a correct and complete report of assessment of incidence, even though it appears obvious the great variety of types and plans or programmes may require case-by-case adjustment.

The Assessment of Incidence applied to the Infrastructure Annex clearly forms part of the survey in which significant adjustments of the analytical and assessment approach have to be made.

In fact, it is worth recalling that, in the case in hand, the subject of assessment is a document of objectives that can be implemented through:

- actions of a non-material nature (for example, improvement of governance of some processes) with very limited possibilities of negative incidence on naturalistic components, but in general on use of land;
- strictly technological actions (for example, strengthening of air traffic control systems);
- actions which may have a material nature but are not locatable;
- actions already performed which have eventually produced effects (thus becoming more a subject of monitoring than of preventive assessment);

- actions which have a localisation in principle but with spatial resolution and planning data that are absolutely insufficient for an analysis of relationships with habitat and species present on sites eventually interfered with.

The Ministry of Environment is well aware of these difficulties and on this issue has issued proposals[2] aimed at supporting integration between SEA and Assessment of Incidence procedures which take on the difficulty of reproducing to scale ecological analyses of factors of disturbance that are very uncertain and indefinite (in localisation, typology and entity of causal impact factors).

For the purpose, it is suggested that an analysis be performed, considering not individual sites but their aggregation according to different criteria of grouping provided that they are not arbitrary but referable to national of European Community regulations. In particular, the following possible criteria are identified:

1) according to the macrocategories of reference for habitats ("Habitat" Directive, Annex I);

2) according to biogeographic unit ("Habitat" Directive);

3) according to environmental type identified from Legislative Decree 17 October 2007.

Application of the first criterion would make it possible to take into consideration habitats which share ecological features, reducing the detail but permitting easier definition of the most significant interactions.

The second criterion calls for consideration of biogeographic areas of which, it is noted, Italy has three (Alpine, Continental and Mediterranean) and concern extended portions of national territory.

The document argues that this aggregation may be useful for the Assessment of Incidence of plans and programmes at national level even if objectively this utility is difficult to identify given the huge geographic extension of the biogeographic units which would not permit analyses useful for the purposes of specific protection, even if a use might be imagined if for no other reason than understanding the broadness of the level of potential involvement.

The third type of aggregation calls for the possibility of using "Minimum Uniform Criteria for the definition of conservation measures related to SACs and SPAs provided for by Ministerial Decree of 17 October 2007. Article 4 of that law identifies 14 environmental reference types on the basis of ornithological criteria. The document suggests this mode of aggregation only for specific cases.

The document further proposes some suggestions for the various types of plan according to the relationships among the number of sites of the Natura 2000 network involved, the vastness of the reference are and the presence or absence of localised interventions.

In the case in which the level of indefiniteness is very high in several sites, a precautionary approach is suggested for identifying principles of a "cautionary" nature to be kept in mind in the phases of plan or programme implementation, that is, in the moment in which more timely actions are defined for which it will be possible to effect site-specific Assessments of Incidence.

On the other hand, the impossibility of going beyond this suggestion becomes evident above all in the reading of methodological documents especially when they call for:

- accurate analyses of habitats and species in areas, the level of involvement of which is not known;
- specification of planning factors (dimensions, construction phases, physical modifications induced in areas, etc.) at an undetermined time.

[2] Cf.: MATTM, ISPRA, "SEA – Assessment of Incidence, Proposal for integration of contents". September 2011.

Obviously excluded are cases in which the strategic lines of the AI also refer to interventions under way or about to be implemented and for which site-specific analysis has already been carried out.

Taking this into account, the assessment which it is considered can be associated with the Infrastructure Annex, assimilating to the extent possible the suggestions contained in the often cited MATTM and ISPRA document, is configured as a general *screening* of the possible interactions with the Natura 2000 network according to the relationships among the following parameters:

- Type factors, or the nature of interventions that can be associated with the functional areas defined in the ER for the SEA;
- potential dimensional factors;
- general localising factors.

The chapter on assessment provides further details on the approach used.

3 Subject of assessment

The subject of the Assessment of Incidence is the Infrastructure Annex to the Economic and Finance Document 2015 which, unlike previous editions, is characterised by a strengthened strategic framework, overcoming the simple logic of listing interventions.

Referring to its reading for the specific details, here we exclusively summarise the contents of the strategic lines, proposing the sub-division into specific objectives and function areas of intervention used in the context of the Environmental Report for the SEA.

The following are the strategic lines defined in the AI:

1. strengthening of the rail mode and improvement of passenger services, in terms of quality and travel time, and transport of good in terms of length of modules, shape and axial weight, mainly concentrating nationally on the completion of the Central European network, starting with the passes and the South of Italy and connections with the TEN network of the main urban and productive hubs.
2. reduction of urban and metropolitan congestion through the strengthening of metropolitan networks, starting from the most populated areas, and the improvement of multimodal regional mobility for better and more reliable services
3. improvement of port and interport competitiveness, aiming at optimisation of each port's vocation, through necessary infrastructural and procedural work and optimisation of national port system governance
4. improvement of the road network, by completing the central road network, in particular the most congested routes; increase in connections to secondary and tertiary hubs for the TEN-T global network and raising of safety levels on the main roads
5. optimisation of air traffic consistent with the outline of "single European sky" and multimodal connection of main airports with city centres

To these strategic objectives is added a sixth which can to a certain extent be considered cross-cutting and in any case substantially uninfluential for the purposes of an assessment inherent to analysis of effects on ecosystems. In fact, it concerns attraction of private capital through adequate policies of administrative strengthening of the contracting stations, the dissemination of models of economic financial plans for private proponents, the greater explanation of the benefits deriving from the execution of work instrumental to the development of the productive districts and effective and synergic use of the different community (European Fund for Strategic Investments – EFSI, ERDF) and national financing sources.

Obviously, for the purposes of making any reasoning about the environmental effects of these strategic lines practicable, it is necessary to structure these strategic objectives in a minimum hierarchical and functional form.

On the basis of the description in the Infrastructure Annex, it is thus possible to associate measured interventions capable of implementing the above-ordered hierarchical objectives with the five strategic lines of the "specific objectives" and, subsequently, the "functional areas of intervention".

Beyond this hierarchical level, we reach the scale of projects which, in some case, are already in the phase of implementation, in others already defined and absent in others that are not defined.

The subjects of the assessment of incidence, as for the SEA, are thus the functional areas as generally understood and thus refer in no way to a specific intervention. The table shows the complete structure comprising strategic lines, specific objectives and functional areas.

Strategic lines	Specific objectives	Functional Areas of Intervention
1. Strengthening of the rail mode and improvement of passenger services, in terms of quality and travel time, and transport of good in terms of length of modules, shape and axial weight, mainly concentrating nationally on the completion of the Central European network, starting with the passes and the South of Italy and connections with the TEN network of the main urban and productive hubs.	1.A. Development of the mid-long-range passenger network. Actions for relaunching railway services compared with other door-to-door modes will focus on increasing network performance to make the mobility system more competitive, with a mix that favours “light” investments with a rapid return (technologies, increases in speed and removal of bottlenecks) alongside some “heavy” investments for network development	1.A.1. Interventions on singular points of the conventional network with solutions that are preferably technological or that provide for a limited use of the territory to permit the raising of speed
		1.A.2 Interventions to raise the performance of the network, continuing with development of the HS/HC network (with specific attention to the South through interventions identified by National Operating Programme 2014-2020 - Infrastructures and Networks), including the speeding up of aerial stretches and upgrading of the performance of the main traveller lines
		1.A.3 Interventions to strengthen railway connections with the main airports in line with the European strategy for the "Core" network to promote air-rail intermodality
	1.B Increase in quality of the cargo network making railways more attractive, planning a series of actions together with logistic operators to provide solutions for the main critical factors that the current cargo railway system suffers from.	1.B.1 For freight traffic, performance adjustment on the main European "Core Corridors" (train profiles and modules), in particular strengthening of the links between domestic terminals – with special attention to those of the South – and Alpine passes, and separation and optimisation of flows by type of service
		1.B.2. Strengthening and streamlining of interconnections between the railways and manufacturing districts, ports and freight terminals, aiming to reduce "last mile" costs and improvement and expansion of services in plants
	1.C. Increase in safety, quality and improving infrastructure efficiency, ensuring continuity in maintenance programmes	1.C.1 Safety interventions and adjustment to legal obligations (level crossings, safety in tunnels, hydrogeological risk, seismic checks, acoustic rebalancing)
		1.C.2 Interventions for infrastructure quality and efficiency (circulation, telecommunications, ERMTS technologies)
2. Reduction of urban and metropolitan congestion through the strengthening of metropolitan networks, starting from the most populated areas, and the improvement of multimodal regional mobility for better and more reliable services;	2.A Development of the TPL network with new proposals for relaunching the sector, also for better intermodal integration between road and rail.	2.A.1 Functional interventions to improve regional railways services, with particular reference to large cities and commuter services
		2.A.2 Functional interventions to expand metropolitan networks
3. Improvement of port and interport competitiveness, aiming at optimisation of each port’s vocation,	3.A. Increase competitiveness of the Sea System, reducing times and costs of transit of goods and of time to carry out interventions on infrastructures in the ports, and improving port systems.	3.A.1. Measures for simplifying and speeding up procedures, controls and interventions on ports of national interest (objective 1 of the PSNPL) and for increasing efficiency of port services and operator competitiveness (objective 2 of the PSNPL)

through necessary infrastructural and procedural work and optimisation of national port system governance;	3.B. Improve services and infrastructures in the port sector and aid an increase in quality of transport and logistic services for manufacturing enterprises.	3.B.1. Measures to improve the transport services and increase accessibility to ports via sea and land (objective 3 of the PSNPL)
		3.B.2. Measures for increasing port infrastructures and their land connections (objective 5 of the PSNPL)
	3.C. Implement a vision of a Sea System as the driver for economic recovery, to also benefit the Italian industrial and productive system, promoting innovation too.	3.C.1. Measures to encourage the integration of logistic chains and manufacturing and logistic activities (objective 4 of the PSNPL)
		3.C.2. Measures to stimulate research, development and technological innovation in the Italian port system (objective 6 of the PSNPL)
	3.D. Pursue international and European guidelines for protection of the environment and reduction of greenhouse gases, accompanying the promotion of the logistics system and increasing use of the sea as a more sustainable communication and transport route than road transport, with protection of the port area environment from various sources of pollution, and minimisation of environmental impact of infrastructures on surrounding area and reduction of energy consumption linked to port activities.	3.D.1. Measures to improve the energy efficiency and environmental sustainability of ports (objective 7 of the PSNPL)
	3.E. Support the mission given to Italian ports via centralised, multi-year planning of financial resources for infrastructures, Sea System coordination, programming and promotion, and a new governance model.	3.E.1. Measures for the financing of management and investments of Port Systems (objective 8 of the PSNPL), for the coordination, planning and national promotion of the sea system (objective 9 of the PSNPL) and for adjustment of the Governance of ports to the mission of the Italian Port System (objective 10 of the PSNPL)
4. Improvement of the road network, by completing the central road network, in particular the most congested routes; strengthening of secondary and tertiary hub connections to the TEN-T global network and raising of safety levels on the main roads	4.A. Resolution of structural critical factors of the network, with particular reference to the age of the main works of art	4.A.1. Interventions for static safety of the main works of art by carrying out static and seismic stability studies on the infrastructures, particularly for some routes that are also subject to deterioration of infrastructures, and widespread interventions on the network
	4.B. Improvement of circulation and safety conditions on the road network	4.B.1 Interventions of adaptation and rationalisation of the road network with specific regard to stretches affected by heavy traffic or significant occurrence of accidents, or aimed at resolving critical issues related to urban congestion at urban hubs, including the completion of routes already affected by relevant interventions of adaptation and safety measures
		4.B.2. Interventions for implementing road Intelligent Transport Systems (ITS)
	4.C. Safety work to protect the road network from landslides and flood risks in order to avoid interruptions in service	4.C.1. Improvement of stability of crumbling slopes or roads at risk of flooding, using stabilisation methods for crumbling areas and regulation of rainwater
	4.D. Reduction of isolation of important population layers with a view to synergy and integration of the various programming levels	4.D.1. Interventions for aiding accessibility to internal areas and the ones most penalised by the particular orography of the territory

5. Optimisation of air traffic consistent with the outline of "single European sky" and a multimodal connection of main airports with city centres	5.A. Optimisation of air traffic in line with single European sky	5.A.1. Interventions aimed at developing air traffic management systems (SESAR programme)
	5.B. Realisation of the works required to improve accessibility and intermodality	5.B.1. Interventions linking road and rail modes to three intercontinental gateways (Fiumicino, Malpensa and Venice)
		5.B.2. Interventions linking road and rail modes with the other strategic airports
		5.B.3. Optimisation of intermodal connections with the nearest airports for regions where there are no airport infrastructures
	5.C. Guarantee airports the capacity required for economic development of the country	5.C.1. Interventions of adaptation and strengthening of existing airports that are ongoing and already planned
		5.C.2. Setting of restraints in the territory or functional delocalisation, if development of the scales is affected by physical, environmental or safety limits

4 The Natura 2000 Network in Italy

4.1 Mechanism of formation and designation of formation of SITES

As already mentioned, the Natura 2000 Network comprises a coordinated and coherent European system of areas that must be adequately protected and conserved by Member States of the European Union insofar as they are home to a series of habitats and plant and animal species indicated in Annexes I and II of Directive 92/43/EEC (Habitat) and in Annex I of Directive 79/409/EEC (Birds), respectively called Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In Italy, transposition occurred with Law 157/97 which assimilated the Birds Directive and with Presidential Decree 357/97 and subsequent modifications for that which concerns the Habitat directive.

The two directives fully assimilate the principles of ecology, widening their field of conservation interest also to semi-natural habitats. For example, agricultural areas are linked with numerous animal and plant species that are now rare and threatened, and for the survival of which the pursuance and enhancement of traditional activities, such as pasturage and non-intensive agriculture, is necessary.

The sites have been identified on the basis of Art. 4 of the Habitat Directive, starting from the proposal of proposed Sites of Community Importance (pSCIs). The pSCIs have thus been identified on the basis of the presence of habitats of community interest listed in Annex I and of species of community interest listed in Annex II of the same Directive. Furthermore, some of these habitats and species are considered a "priority" by the Directive (and indicated with an asterisk), insofar as being threatened; for this reason, the European Union has a strong responsibility for conservation because it houses a significant part of their areal of distribution. Similarly, the SPAs have been identified on the basis of the presence of the species listed in Annex I of the Birds Directive.

A standard form (the "Natura 2000" form, complete with maps) has been drawn up for each site and subsequently formally submitted to Directorate-General XI of the European Commission. The data were then collected by the *European Topic Centre on Nature Conservation* (ETC/NC) in Paris, which works on behalf of the European Environment Agency (EEA) which has been entrusted by the Commission with the technical management of Natura 2000.

Formalisation of the technical decisions has thus taken place in scientific seminars called "biogeographical seminars" according to the ecological/geographic areas of reference[3] in which administrative and scientific representatives of the competent national authorities of Member States interested in the biogeographical region in question have participated. In particular, at the end of the biogeographical seminars, the Commission formally adopted the list of Sites of Community Interest, transforming the pSCIs into SCIs.

This phase is followed by the designation of Special Areas of Conservation (SACs) within six years of their selection. From that moment, the sites will form part of the Natura 2000 network to all effects, and for this reason the most opportune conservation measures must be established and adopted in order to avoid the deterioration of natural habitats and of the habitats of species, as well as the disturbance of species for which the areas have been designated.

It is to be noted that the status of pSCI is already a sufficient condition for triggering the needs of protection provided for (especially those inherent to the need to activate the Assessments of Incidence). As far as the Special Protection Areas (SPAs), designated by Member States pursuant to the Birds Directive, are concerned, these have been selected on the basis of the list of IBA sites, "*Important*

[3] The 9 biogeographical regions are: Atlantic, Continental, Alpine, Mediterranean, Boreal, Macaronesian, Pannonian, Steppic and Black Sea region. Italian territory is concerned with the Alpine, Continental and Mediterranean regions.

Bird Areas", compiled by *Birdlife International* at the request of the European Commission, in order to obviate the lack of homogeneous criteria in the Directive for identification of SPAs; criteria which were, however, applied in the definition of IBAs and which guaranteed good reliability and due scientific impartiality.

4.2 Summary of the Italian situation

Given that the area of reference of the Infrastructure Annex concerns the entire territory of Italy, a detailed analysis of the actual situation structured with reference to individual sites is impossible.

De facto, it would involve the transfer of the huge amount of information held by the appointed bodies, and above all MATTM as well as ISPRA, the regions and the various ARPAs. Referring to these primary sources for all the investigations in question, here it is considered sufficient to recall the main summary data on the presence on Italian territory of Natura 2000 Network sites.

To date, 2,589 Natura 2000 Network sites have been identified: 2,314 Sites of Community Interest (SCIs) and 610 Special Protection Areas (SPAs): 335 Natura 2000 sites are type C, or SCIs coinciding with SPAs.

Table 1 Distribution by region of SPAs, SCIs/SACs and type C sites (SCIs/SACs coinciding with SPAs) - updated as of October 2014 (Source: MATTM)

	SCIs/SACs				SPAs				Type C sites (SCI/SAC-SPA)
Region/ Autonomous Province	no.	Surface area (ha)			no.	Surface area (ha)			no.
		on land	at sea	total		on land	at sea	total	
Abruzzo	54	252,593	3,410	256,003	5	307,998		307,998	1
Basilicata	55	65,238	5,894	71,132	17	161,846	686	162,532	14
Calabria	178	70,197	20,251	90,448	6	248,476	13,716	262,192	0
Campania	109	338,678	25,072	363,750	31	196,037	24,577	220,614	16
Emilia-Romagna	139	236,793	3,557	240,350	87	188,186	3,489	191,675	68
Friuli Venezia Giulia	59	129,173	4,999	134,172	8	113,458	2,991	116,449	4
Lazio	182	122,759	22,846	145,605	39	380,601	27,586	408,187	21
Liguria	126	138,067	9,133	147,200	7	19,715	0	19,715	0
Lombardy	193	224,199	---	224,199	67	297,424	---	297,424	18
Marche	76	104,684	900	105,584	27	126,942	1,101	128,043	8
Molise	85	97,750	0	97,750	12	66,019	0	66,019	9
AP Bolzano	40	149,932	---	149,932	17	142,626	---	142,626	31
AP Trento	135	154,314	---	154,314	19	127,133	---	127,133	17
Piedmont	126	284,449	---	284,449	50	308,064	---	308,064	12
Apulia	78	393,455	74,795	468,250	11	261,705	9,581	271,286	5
Sardinia	93	366,427	116,568	482,995	37	244,738	51,188	295,926	6
Sicily	223	380,182	108,317	488,499	30	289,591	109,880	399,471	15
Tuscany	134	305,935	70,530	376,465	61	131,463	61,173	192,636	44
Umbria	97	121,330	---	121,330	7	47,244	---	47,244	2
Valle d'Aosta	28	71,643	---	71,643	5	86,341	---	86,341	3

Veneto	104	369,477	3,805	373,282	67	359,298	571	359,869	41
ITALY	**2314**	**4,377,275**	**470,077**	**4,847,352**	**610**	**4,104,905**	**306,539**	**4,411,444**	**335**

Excluding overlapping, Natura 2000 sites in Italy cover around 5,817,599 ha of land surface area, equivalent to around 19.3% of the national territory, and 573,782 ha of sea surface area.

Table 2 - Natura 2000 Network Sites – Net number, net surface area and percentage of land surface area compared with territorial area - updated as of October 2014 (Source: MATTM)

Region/ Aut. Province	Natura 2000 Network				Regional surface area	Sup.RN2000/ Sup. Regional
	no.	**Surface area (ha)**				
		on land	**at sea**	**total**	**ha**	**%**
Abruzzo	58	387,084	3,410	390,494	1,083,184	35.7
Basilicata	58	171,104	5,894	176,998	1,007,332	17
Calabria	184	289,572	33,352	322,924	1,522,190	19
Campania	124	373,030	25,072	398,102	1,367,095	27.3
Emilia-Romagna	158	266,250	3,556	269,806	2,245,278	11.9
Friuli Venezia Giulia	63	146,734	5,002	151,736	786,230	18.7
Lazio	200	398,034	46,132	444,166	1,723,229	23.1
Liguria	133	139,959	9,133	149,092	541,621	25.8
Lombardy	242	372,153	---	372,153	2,386,365	15.6
Marche	95	141,585	1,102	142,687	940,138	15.1
Molise	88	118,724	0	118,724	446,065	26.6
AP Bolzano	40	149,931	---	149,931	739,838	20.3
AP Trento	142	176,181	---	176,181	620,712	28.4
Piedmont	145	398,703	---	398,703	2,538,707	15.7
Apulia	84	402,387	74,981	477,368	1,954,090	20.6
Sardinia	124	452,366	122,470	574,836	2,410,002	18.8
Sicily	238	469,847	169,288	639,135	2,583,239	18.2
Tuscany	151	320,603	70,541	391,144	2,298,704	13.9
Umbria	102	130,092	---	130,092	846,433	15.4
Valle d'Aosta	30	98,952	---	98,952	326,090	30.3
Veneto	130	414,308	3,849	418,157	1,840,742	22.5
ITALY	**2,589**	**5,817,599**	**573,782**	**6,391,381**	**30,207,284**	**19.3**

According to data updated as of August 2015, 403 sites out of 2,314 SCIs, belonging to eight Regions and one Autonomous Province have completed the procedure under Article 4 of the Directive, taking the status of Special Area of Conservation (SAC); they are in: Basilicata, Friuli Venezia Giulia, Liguria, Lombardy, Marche, Puglia, AP Trento, Umbria and Valle d'Aosta.

Three of the 9 biogeographical areas identified in the European Union are represented in Italian Natura 2000 sites: the Alpine, Continental and Mediterranean areas, and overall the following are protected: 131 habitats, 89 flora species and 111 fauna species (of which 21 mammal, 11 reptile, 16 amphibious, 25 fish and 38 invertebrate species) under the Habitat Directive; around 387 avifauna species under the Birds Directive.

The following ***Fig.2*** identifies these regions, while the subsequent ***Figures from 3 to 9*** provide maps of Italian SCI and SPA sites

Table 3 – SACs designated by region – updated as of August 2015 (Source: MATTM)

Region/Autonomous Province	SAC				
	no. sites	land surface area		sea surface area	
		sup. (ha)	*%*	*sup. (ha)*	*%*
Basilicata	20	30,824	3.06%	0	0
Friuli Venezia Giulia	56	129,173	16.43%	3003	3.61%
Liguria	14	32,138	5.93%	0	0
Lombardy	46	108,773	4.56%	/	/
Marche	1	109	0.01%	0	0
Apulia	21	34,298	1.76%	6848	0.45%
AP Trento	123	43,609	7.03%	/	/
Umbria	95	102,981	12.17%	/	/
Valle d'Aosta	27	34,607	10.61%	/	/
TOTAL	**403**	**516,512**	**1.71%**	**9851**	**0.06%**

Fig. 2 – Italian Biogeographic Regions (Source - http://natura2000.eea.europa.eu/#)

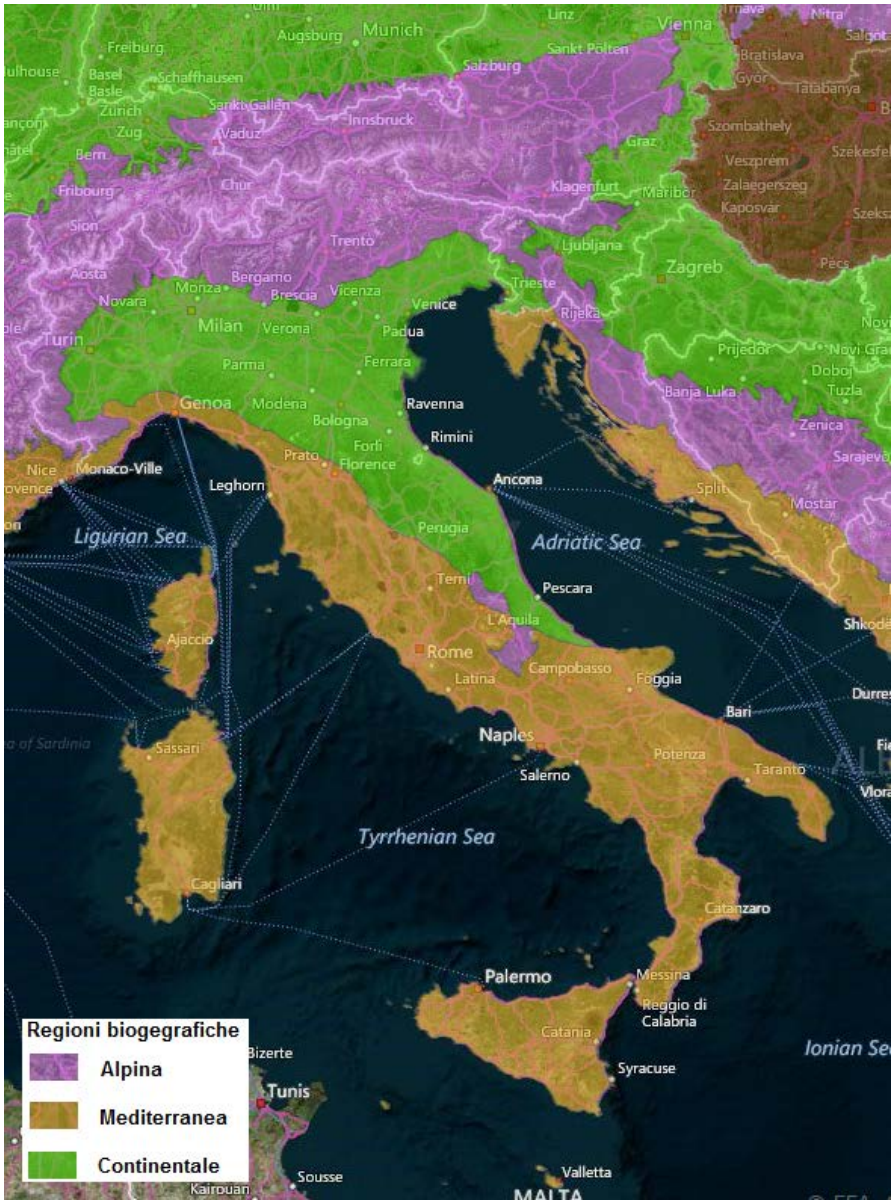
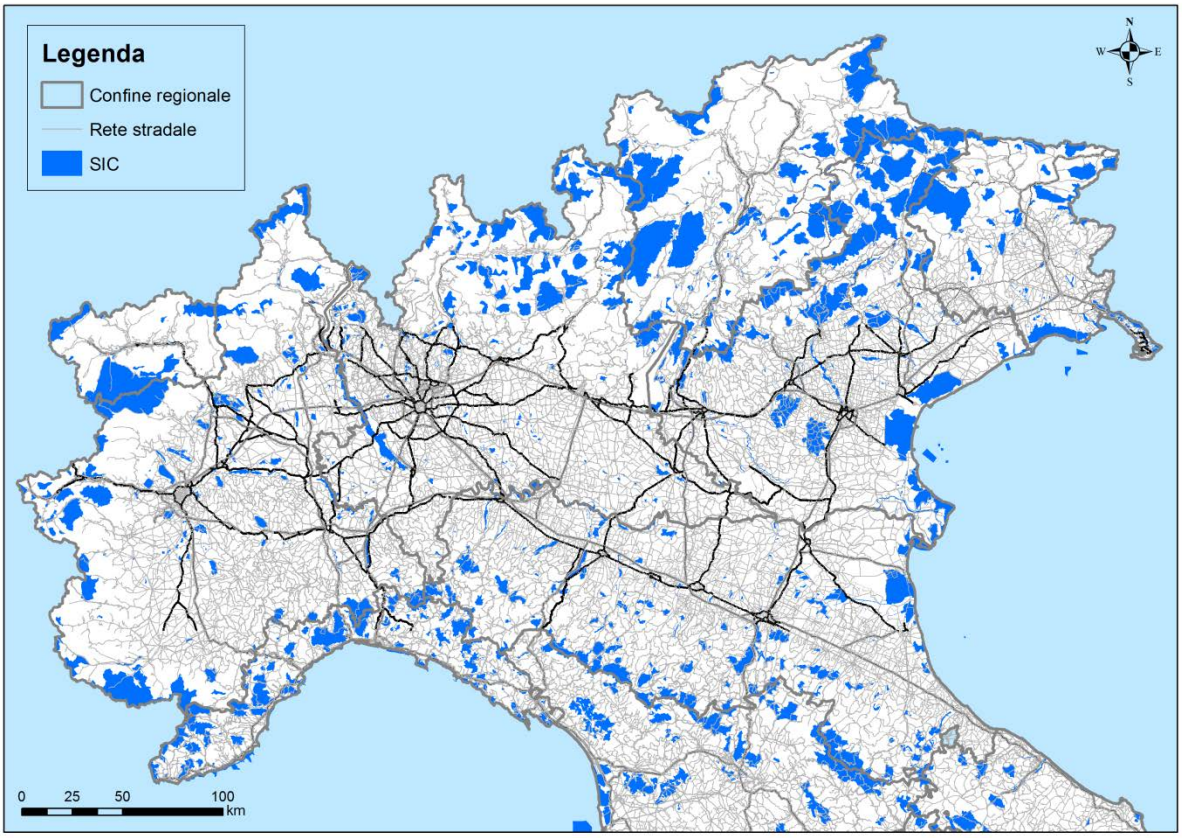


Fig. 3 – Distribution of SCIs and SPAs in northern Italy (Source: (our processing of MATTM data)



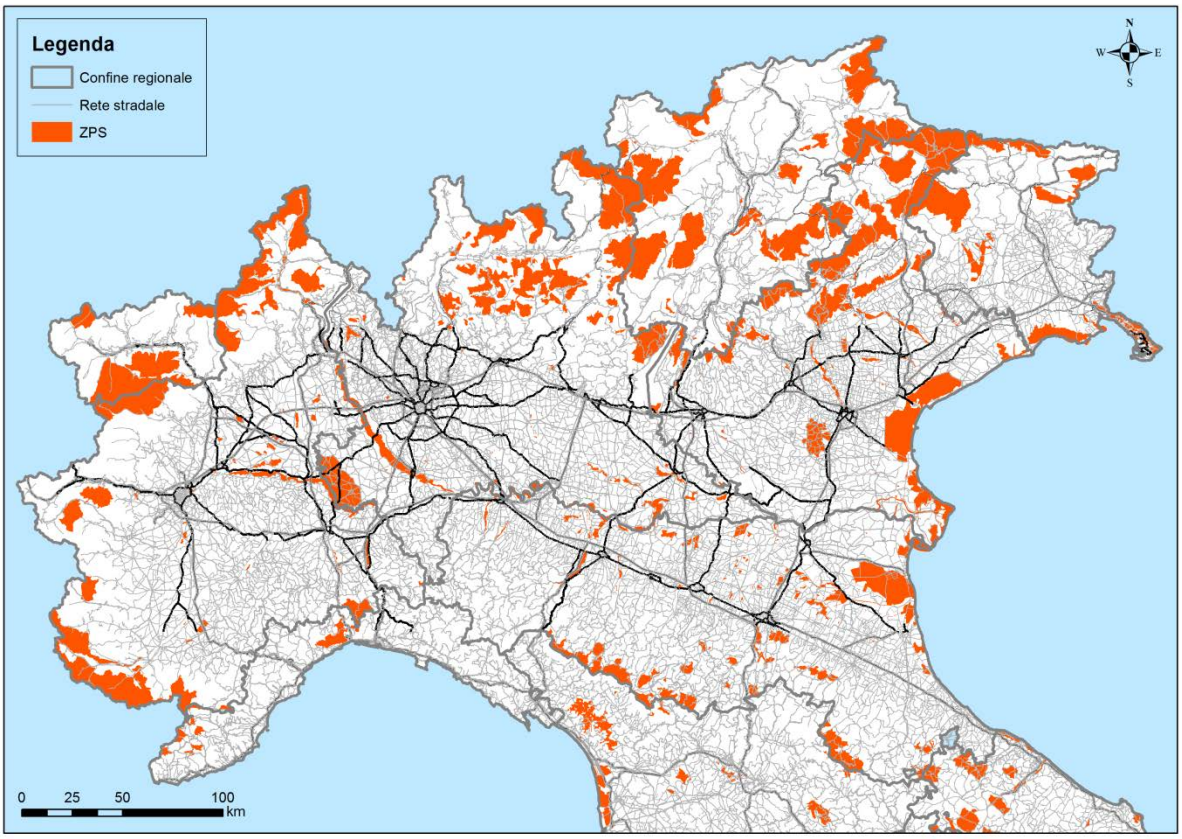


Fig. 4 – Distribution of SCIs in central Italy (Source: (our processing of MATTM data)

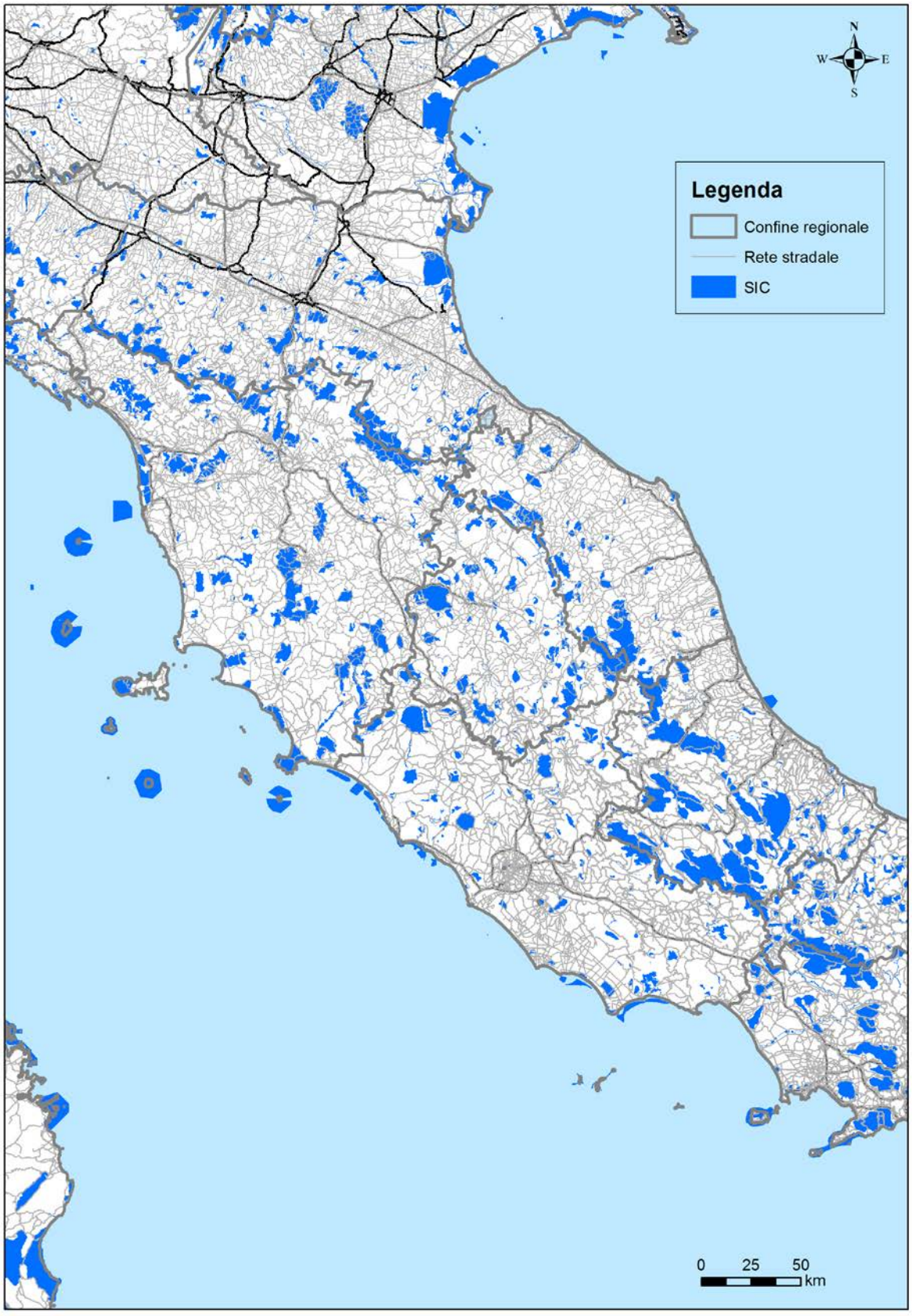


Fig. 5 – Distribution of SPAs in central Italy (Source: (our processing of MATTM data)

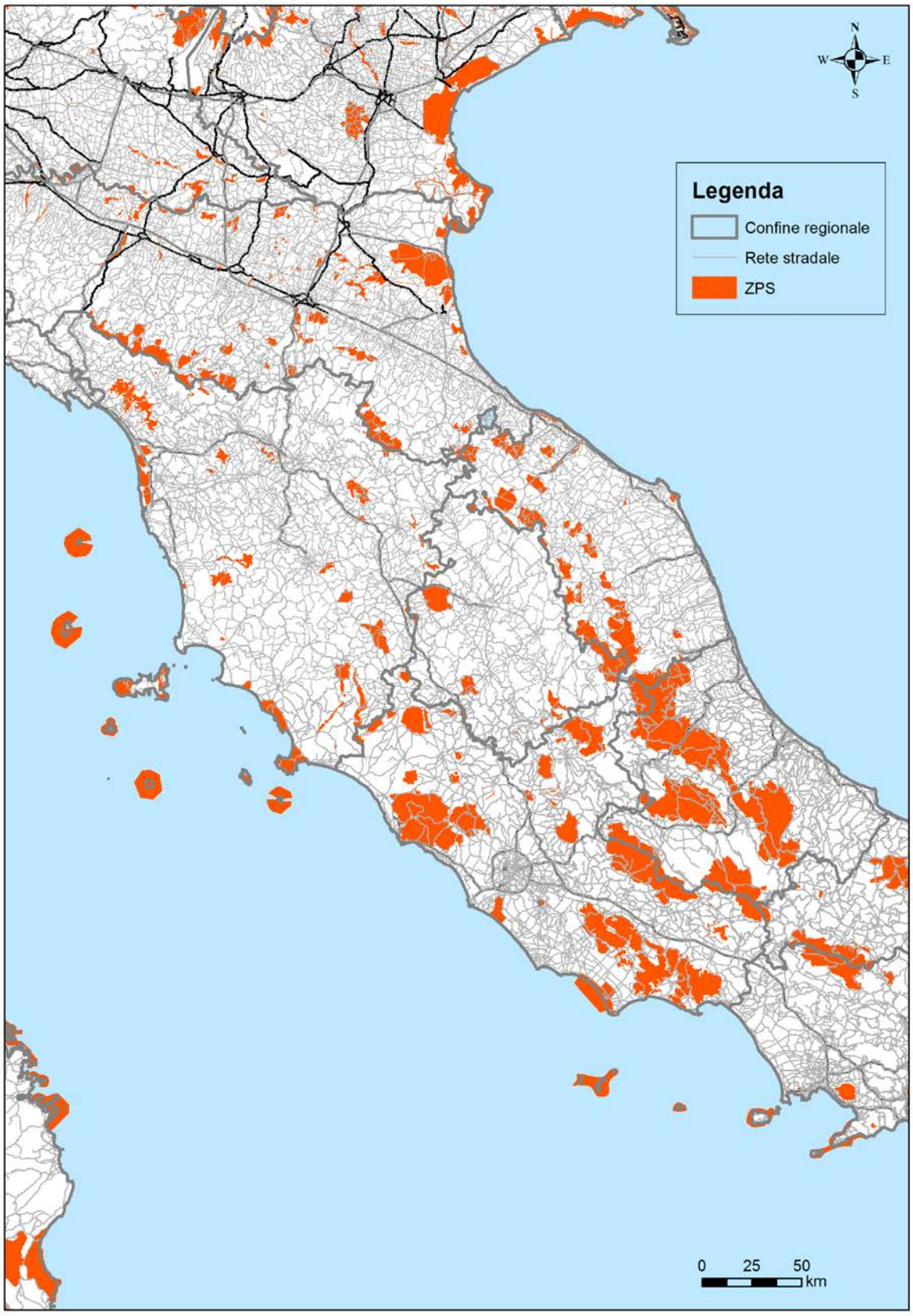


Fig. 6 – Distribution of SCIs in southern Italy (Source: (our processing of MATTM data)

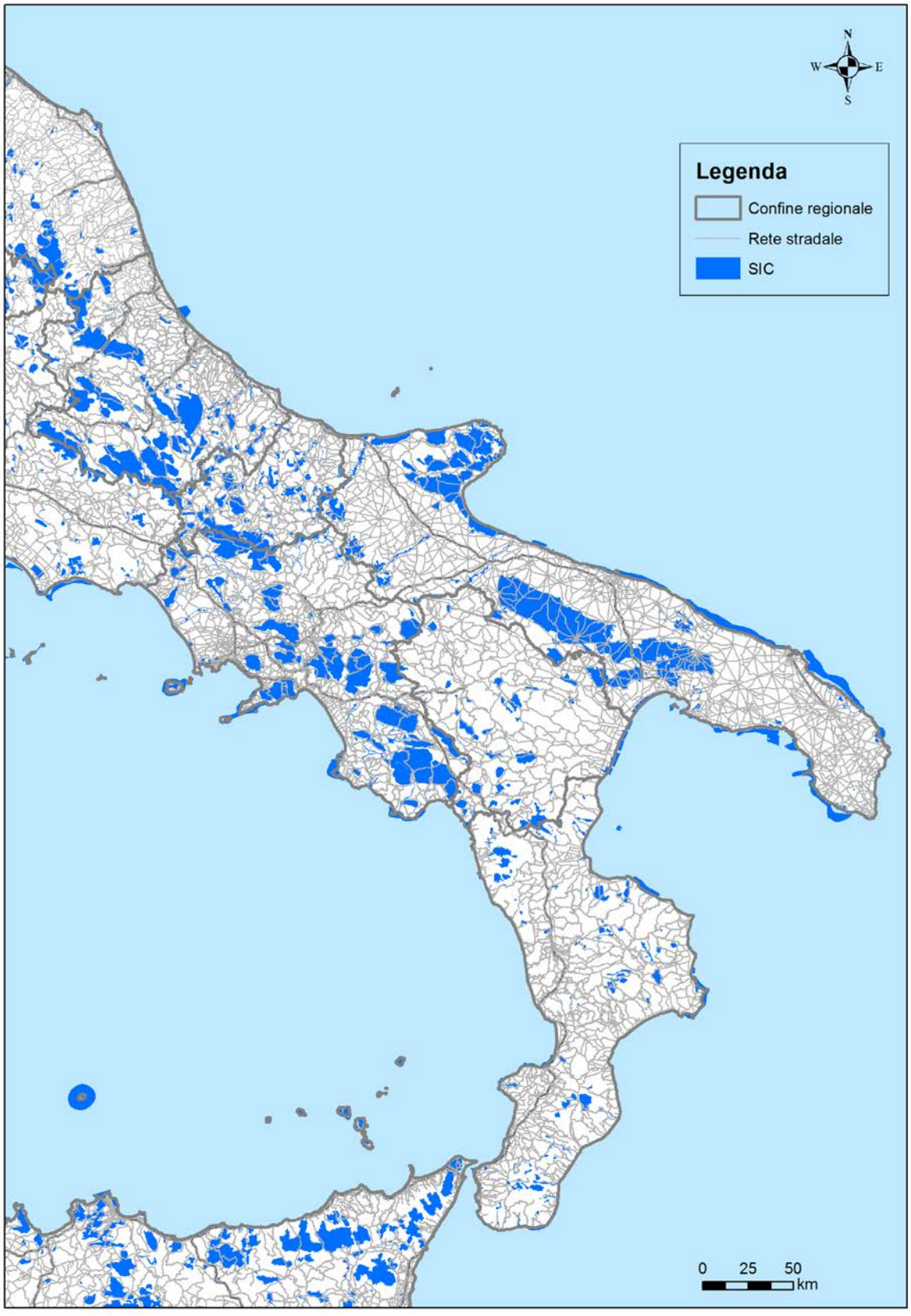


Fig. 7 – Distribution of SPAs in southern Italy (Source: (our processing of MATTM data)

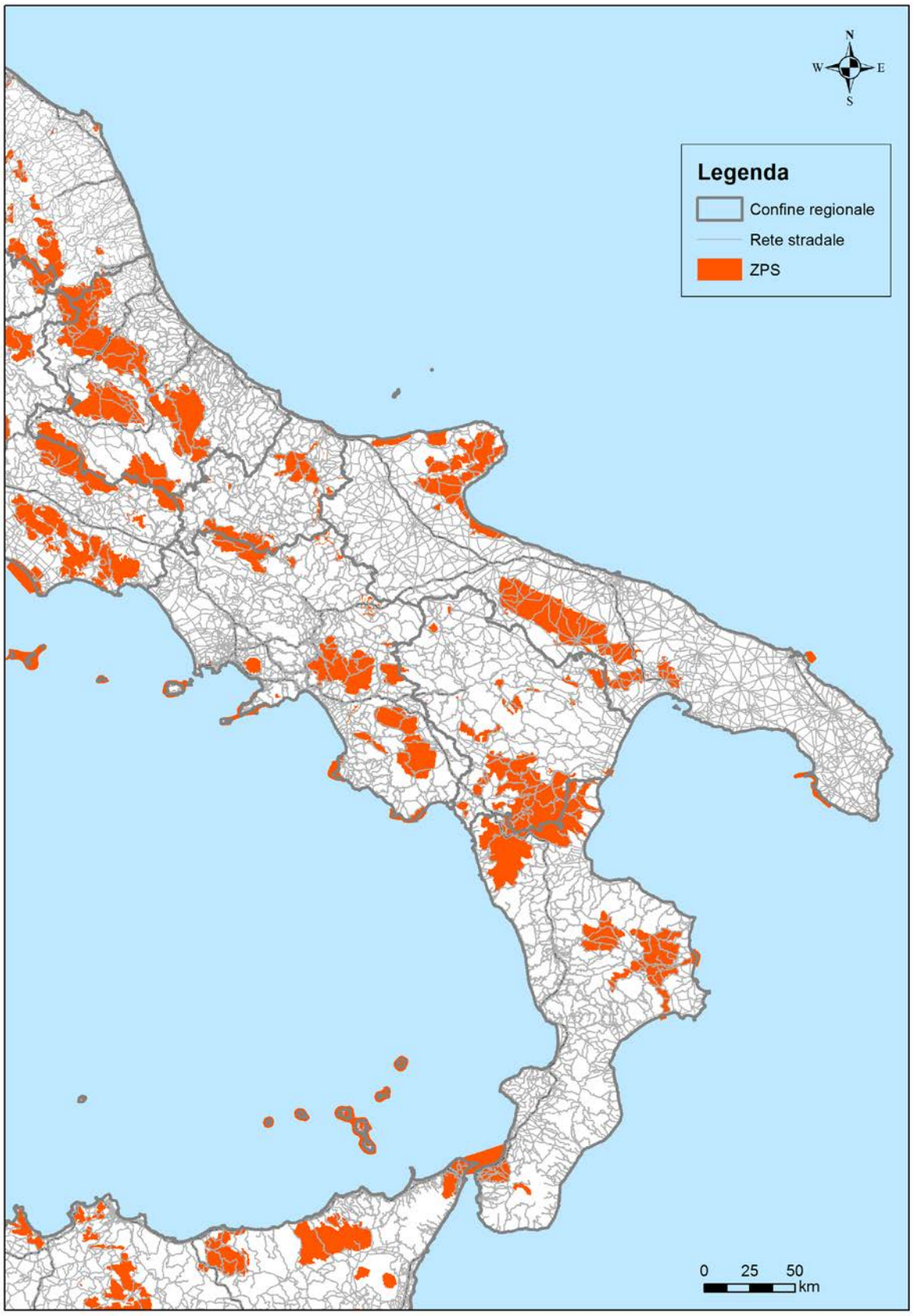


Fig. 8 – Distribution of SCIs in Italian islands (Source: (our processing of MATTM data)

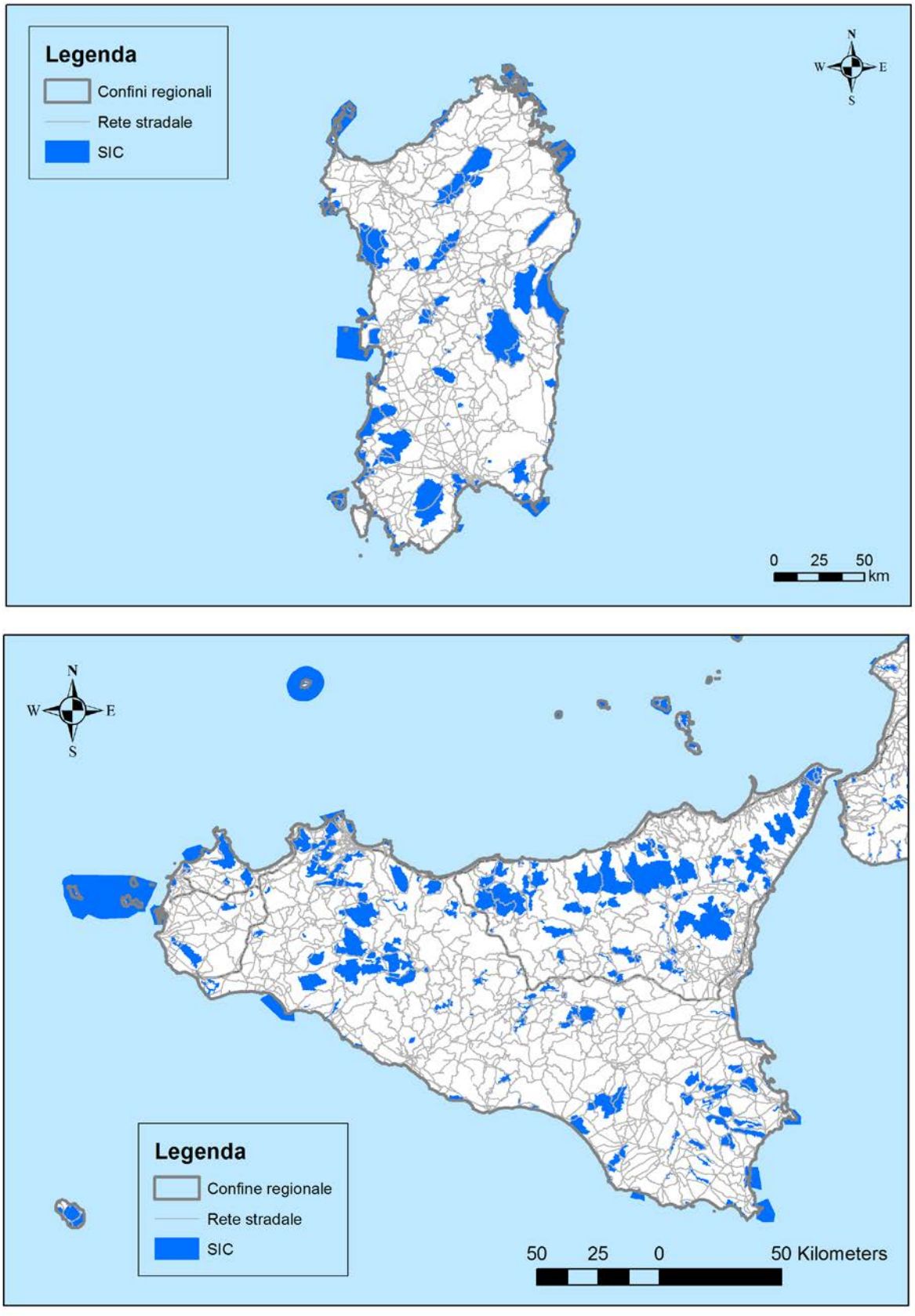
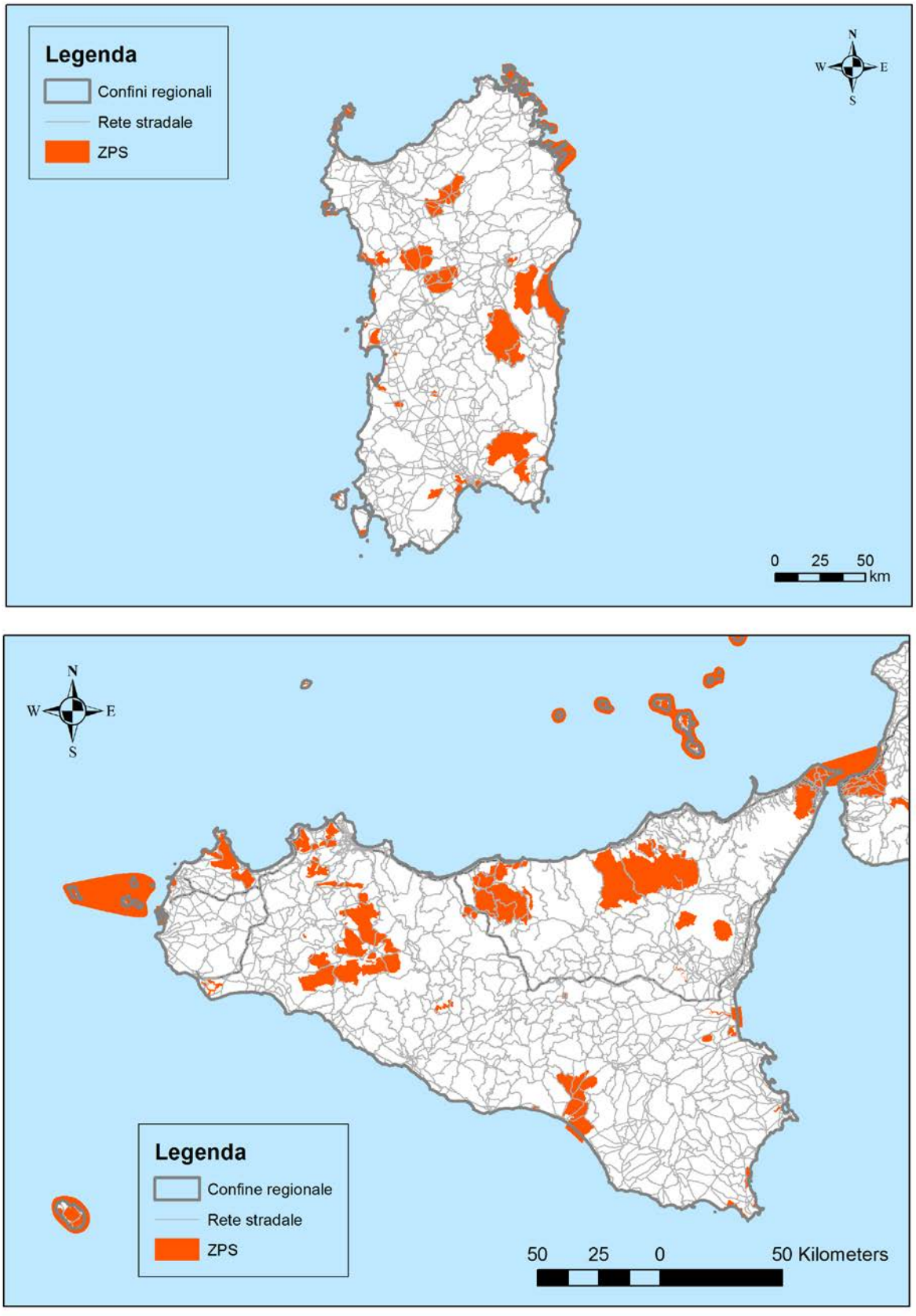


Fig. 9 – Distribution of SPAs in Italian islands (Source: (our processing of MATTM data)



5 Assessment

Recalling what was mentioned in the methodological premise, the assessment of incidence applicable to the AI can be nothing more than the search for greater or lesser risk of involvement of the Natura 2000 network through possible actions connected to the Functional Areas that have been identified.

Faced with a plan or programme characterised by forecasts, even if inaccurate, of occupation or transformation of land, this operation would obviously be facilitated by simple *overlay mapping* operations which would have permitted concrete identification of risk.

In the case in question, this information is not available, but it was considered possible to identify, even with a high level of uncertainty, a preliminary risk factor by operating with the following criteria:

a) prevalent type of actions that could be associated with the functional area;

b) morphological-dimensional factors of actions that could be associated with the functional area;

c) biogeographical regions presumably more heavily involved.

For every criterion it is possible to associate a level of criticality according to a definable "intensity" according to the following levels:

A) type of actions that could be associated with the functional area, proposing the following ranking:

level 3) functional area to which actions with a strong infrastructural component (for example major rail works, road works, port area extensions, etc.) can be associated;

level 2) functional area to which actions with a moderate infrastructural component (for example rail interventions on short specific stretches, major adjustments, etc.) can be associated;

level 1) functional area to which actions with a weak infrastructural component (for example prevalence of adjustments, precise interventions etc.) can be associated;

level 0) functional area to which actions of a technological managerial nature, and thus with a strong non-material or partially non-material component, can be associated;

B) morphological/dimensional factors of actions that can be associated with the functional area;

level 3) actions that imply interventions of a linear or very extended areal nature and in an extra-urban area;

level 2) actions that imply interventions of a linear or moderately extended areal nature mainly in an extra-urban context;

level 1) actions that imply interventions of a linear or scarcely extended areal nature mainly in an extra-urban context;

level 0) actions that imply interventions mainly in an urban or non-material context;

C) potentially involved biogeographical regions;

level 3) Potentially all Italian biogeographical regions;

level 2) Potentially two Italian biogeographical regions;

level 1) Potentially one Italian biogeographical region;

level 0) No possible involvement by nature of the actions.

The combination of these factors may be operated according to a simple additional model (sum of parameters) leading to the definition of a kind of "level of attention" included in the range between 0 and 9 and further summarisable in the following way and with the following meanings:

- 0-2: Low level of attention (I): need to perform site-specific assessments of incidence is not excluded but will probably concern only particular situations;
- 3-5: Moderate level of attention (II): most interventions associated with the functional area could probably require a site-specific assessment of incidence;
- 6-9: High level of attention (III): almost all interventions associated with the functional area could probably require a site-specific assessment of incidence;

The following table summarises the results of application of this methodology.

From its reading, it can be gathered that the maximum level of attention generally concerns those Functional Areas to which major "network" interventions are associated because of the greater probability that the linear infrastructures intersect with Natura 2000 network sites.

On the other hand, the intermediate level of attention mainly concerns functional areas that are also capable of generating network interventions but potentially less extensive and/or affecting urban areas and/or of the areal or precise type.

The lowest level of attention substantially concerns those functional areas to which "low impact" interventions are associated because of their partially or totally non-material nature

As mentioned on several occasions, it is in any case a question of an approach that is useful for understanding the order of magnitude of the problems to be faced, and there is no doubt that, overall, the AI projected into its implementation phase could involve the Italian Natura 2000 network in several parts of the territory.

The most operational responses and, above all, the definitions of the measures to be adopted to reduce the incidence of interventions on the Natura 2000 network must obviously be sought in subsequent site-specific assessments of incidence related to individual projects.

Table 4 – Definition of level of attention in relation to the possibility of interaction with areas of the Natura 2000 network

Strategic lines	Specific objectives	Functional Areas of Intervention	Factor Typological	Factor Morphological and Dimensional	No. Biogeog. Reg.	Resulting level of attention
1. Strengthening of the rail mode and improvement of passenger services, in terms of quality and travel time, and transport of good in terms of length of modules, shape and axial weight, mainly concentrating nationally on the completion of the Central European network, starting with the passes and the South of Italy and connections with the TEN network of the main urban and productive hubs.	1.A. Development of the mid-long-range passenger network. Actions for relaunching railway services compared with other door-to-door modes will focus on increasing network performance to make the mobility system more competitive, with a mix that favours “light” investments with a rapid return (technologies, increases in speed and removal of bottlenecks) alongside some “heavy” investments for network development	1.A.1. Interventions on singular points of the conventional network with solutions that are preferably technological or that provide for a limited use of the territory to permit the raising of speed	1	2	2	II
		1.A.2 Interventions to raise the performance of the network, continuing with development of the HS/HC network (with specific attention to the South through interventions identified by National Operating Programme 2014-2020 - Infrastructures and Networks), including the speeding up of aerial stretches and upgrading of the performance of the main traveller lines	3	3	2	III
		1.A.3 Interventions to strengthen railway connections with the main airports in line with the European strategy for the "Core" network to promote air-rail intermodality	2	1	2	II
	1.B Increase in quality of the cargo network making railways more attractive, planning a series of actions together with logistic operators to provide solutions for the main critical factors that the current cargo railway system suffers from.	1.B.1 For freight traffic, performance adjustment on the main European "Core Corridors" (train profiles and modules), in particular strengthening of the links between domestic terminals – with special attention to those of the South – and Alpine passes, and separation and optimisation of flows by type of service	3	3	3	III
		1.B.2. Strengthening and streamlining of interconnections between the railways and manufacturing districts, ports and freight terminals, aiming to reduce "last mile" costs and improvement and expansion of services in plants	2	1	2	II
	1.C. Increase in safety, quality and improving infrastructure efficiency, ensuring continuity in maintenance programmes	1.C.1 Safety interventions and adjustment to legal obligations (level crossings, safety in tunnels, hydrogeological risk, seismic checks, acoustic rebalancing)	1	1	3	II

		1.C.2 Interventions for infrastructure quality and efficiency (circulation, telecommunications, ERMTS technologies)	0	0	0	I
2. Reduction of urban and metropolitan congestion through the strengthening of metropolitan networks, starting from the most populated areas, and the improvement of multimodal regional mobility for better and more reliable services;	2.A Development of the TPL network with new proposals for relaunching the sector, also for better intermodal integration between road and rail.	2.A.1 Functional interventions to improve regional railways services, with particular reference to large cities and commuter services	3	2	2	III
		2.A.2 Functional interventions to expand metropolitan networks	3	0	2	II
3. Improvement of port and interport competitiveness, aiming at optimisation of each port's vocation, through necessary infrastructural and procedural work and optimisation of national port system governance;	3.A. Increase competitiveness of the Sea System, reducing times and costs of transit of goods and of time to carry out interventions on infrastructures in the ports, and improving port systems.	3.A.1. Measures for simplifying and speeding up procedures, controls and interventions on ports of national interest (objective 1 of the PSNPL) and for increasing efficiency of port services and operator competitiveness (objective 2 of the PSNPL)	0	0	0	I
	3.B. Improve services and infrastructures in the port sector and aid an increase in quality of transport and logistic services for manufacturing enterprises.	3.B.1. Measures to improve the transport services and increase accessibility to ports via sea and land (objective 3 of the PSNPL)	2	2	2	III
		3.B.2. Measures for increasing port infrastructures and their land connections (objective 5 of the PSNPL)	1	1	2	II
	3.C. Implement a vision of a Sea System as the driver for economic recovery, to also benefit the Italian industrial and productive system, promoting innovation too.	3.C.1. Measures to encourage the integration of logistic chains and manufacturing and logistic activities (objective 4 of the PSNPL)	1	0	2	II
		3.C.2. Measures to stimulate research, development and technological innovation in the Italian port system (objective 6 of the PSNPL)	0	0	0	I

	3.D. Pursue international and European guidelines for protection of the environment and reduction of greenhouse gases, accompanying the promotion of the logistics system and increasing use of the sea as a more sustainable communication and transport route than road transport, with protection of the port area environment from various sources of pollution, and minimisation of environmental impact of infrastructures on surrounding area and reduction of energy consumption linked to port activities.	3.D.1. Measures to improve the energy efficiency and environmental sustainability of ports (objective 7 of the PSNPL)	0	0	0	I
	3.E. Support the mission given to Italian ports via centralised, multi-year planning of financial resources for infrastructures, Sea System coordination, programming and promotion, and a new Governance model.	3.E.1. Measures for the financing of management and investments of Port Systems (objective 8 of the PSNPL), for the coordination, planning and national promotion of the sea system (objective 9 of the PSNPL) and for adjustment of the Governance of ports to the mission of the Italian Port System (objective 10 of the PSNPL)	0	0	0	I
4. Improvement of the road network, by completing the central road network, in particular the most congested routes; increase in connections to secondary and tertiary hubs for the TEN-T global network and raising of safety levels on the main roads	4.A. Resolution of structural critical factors of the network, with particular reference to the age of the main works of art	4.A.1. Interventions for static safety of the main works of art by carrying out static and seismic stability studies on the infrastructures, particularly for some routes that are subject to deterioration of infrastructures too, and widespread interventions on the network	1	0	3	II
	4.B. Improvement of circulation and safety conditions on the road network	4.B.1 Interventions of adaptation and rationalisation of the road network with specific regard to stretches affected by heavy traffic or significant occurrence of accidents, or aimed at resolving critical issues related to urban congestion at urban hubs, including the completion of routes already affected by relevant interventions of adaptation and safety measures	2	2	3	III
		4.B.2. Interventions for implementing road Intelligent Transport Systems (ITS)	0	0	0	I

	4.C. Safety work to protect the road network from landslides and flood risks in order to avoid interruptions in service.	4.C.1. Improvement of stability of crumbling slopes or roads at risk of flooding, using stabilisation methods for crumbling areas and regulation of rainwater	1	1	3	II
	4.D. Reduction of isolation of important population layers with a view to synergy and integration of the various programming levels	4.D.1. Interventions for aiding accessibility to internal areas and the ones most penalised by the particular orography of the territory	1	1	3	II
5. Optimisation of air traffic consistent with the outline of "single European sky" and a multimodal connection of main airports with city centres	5.A. Optimisation of air traffic in line with single European sky	5.A.1. Interventions aimed at developing air traffic management systems (SESAR programme)	0	0	0	I
	5.B. Realisation of the works required to improve accessibility and intermodality	5.B.1. Interventions linking road and rail modes to three intercontinental gateways (Fiumicino, Malpensa and Venice)	2	2	2	III
		5.B.2 Interventions linking road and rail modes with the other strategic airports	2	2	2	III
		5.B.3. Optimisation of intermodal connections with the nearest airports for regions where there are no airport infrastructures	1	1	2	II
	5.C. Guarantee airports the capacity required for economic development of the country	5.C.1. Interventions of adaptation and strengthening of existing airports that are ongoing and already planned	2	2	2	III
		5.C.2. Setting of restraints in the territory or functional delocalisation, if development of the scales is affected by physical, environmental or safety limits	0	0	0	I

6 Conclusions and indications for mitigation measures

The Assessment of Incidence is the main instrument through which Natura 2000 Network sites are protected. Its application follows technical rules defined in Annex G of Presidential Decree 357/97 outlined in national and international manuals and guidelines, from the reading of which it can be seen that the assessment of incidence requires data and detailed information that should be capable of permitting a careful analysis of the interaction among causal factors of impact and site.

In the case of the AI, but generally in all wide-ranging programmes, the information framework related to both causal factors and localising characteristics clearly does not reach such levels of detail.

In such cases, it is opportune to adopt a precautionary approach aimed at identifying principles of a cautionary nature, to be kept in mind in the implementation phase of the plan or programme, that is, in the moment in which precise actions will be defined.

According to this logic, an expeditious analysis was carried out which made it possible to define the level of attention to be associated with each individual functional area into which the Infrastructure Annex was structured.

From its application, it is clear that for most functional areas there is a strong probability that in the phase of planning investigation it will be necessary to carry out site-specific assessments of incidence.

Faced with this overall picture, it appears evident in any case that it will be possible to establish the effective presence of incidence on Natura 2000 sites only when the assessment can be carried out on specific projects equipped with the necessary localising, geometric and quantitative details.

The definition of mitigation measures must also clearly be referred to the implementing phase: on the occasion of site-specific assessments of incidence that will certainly be activated, it will be possible to define planning solutions that from the outset avoid the most significant direct and indirect interactions with the habitats and species that make up the Natura 2000 network. On that occasion, it will also be possible to define the necessary mitigation and/or compensation measures for the impacts that cannot be avoided. This will certainly concern devices tested over time and well documented in the manuals that are widely available and offer a wide range of solutions for environmental restoration, an increase in plant cover and biodiversity, a reduction in ecosystem fragmentation, a reduction in risks for fauna, etc. To this end, refer to Chapter 8 of the Environmental Report which gives ample space to guidelines and good practices of reference, starting with the numerous manuals published by ISPRA on the issue.

These measures must also necessarily cope with scenarios that open up following the pressure from climatic changes. These should be borne in mind both because they are modifying ecosystems themselves, calling for an updating of normal mitigation practices (for example, in the choice of plant species), and because the need for raising the resilience of infrastructures could modify the usual framework of reference which has been used in the past (for example, the increase of the permeability of linear infrastructures compared with the hydrography which could induce a tendency to an increase in aerial structures to the detriment of solutions in relief).

Methodologies for the identification of compensatory mechanisms of an environmental nature are always widely available, even if in practice they are often sacrificed through the scarcity of economic resources.

From this point of view, a “mitigation measure” that can be associated with the Infrastructure Annex understood globally may be identified in the need to introduce forms of incentivisation and/or awards for the adoption of measures of environmental inclusion and compensation in planning and also in mechanisms for financing works.