



Project Title: BIO_SOS Biodiversity Multisource Monitoring System:
from Space TO Species

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Abstract	Overview of finished and on-going projects related to BIO_SOS at global, European and national level. At national level only projects have been included in the countries involved in BIO_SOS.
Keywords	Biodiversity, monitoring, projects, methodologies

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Executive summary

There are many differences in national and regional policies and in cooperation within and between countries and regions (Strand et al 2009). The 2009 summary report on Article 17 of the Habitats Directive concludes that data on species and especially habitats are collected in different ways, are unavailable or are insufficient in their spatial coverage (ETC-Biodiversity, 2009).

BIO_SOS is aware of this and it is considered important to link with previous projects and to make use of knowledge and data developed there. This Deliverable presents a short overview and access points to these project to make possible the sharing of data and experience gained, and monitoring methodologies in other projects on biodiversity monitoring. This will ensure the best use of the existing knowledge.

There are not only projects but also initiatives that might be overarching, such as GEO BON and GMES. Projects and initiatives are organised in three chapters, global, European and national. They include FP6 and FP7 projects such as BIOPRESS and EBONE, but also nationally funded projects such as HABISTAT and projects at CIBIO and UNIMIB.

1. Introduction

This report lists the knowledge and experiences gained in other on-going and previous project and initiatives. Information is available on description and sharing of data and development of monitoring methodologies for comparison.

There are many differences in national and regional policies and in cooperation within and between countries and regions (Strand et al 2009). The 2009 summary report on Article 17 of the Habitats Directive concludes that data on species and especially habitats are collected in different ways, are unavailable or are insufficient in their spatial coverage (ETC-Biodiversity, 2009).

BIO_SOS is aware of this and it is considered important to link with previous projects and to make use of knowledge and data developed there. This Deliverable presents a short overview and access points to these project to make possible the sharing of data and experience gained, and monitoring methodologies in other projects on biodiversity monitoring. This will ensure the best use of the existing knowledge.

That previous projects are considered for linking is not a guarantee that data really can be used. That is depending on data access, permission to use the data, accuracy of the data, the detail in the data and metadata on the location of these data. Geographical land understanding appears somewhat inadequate. Images from medium (10-30 m) spatial resolution satellites already used in previous FP6 and on-going FP7 projects are often too coarse for habitat and related pressures definition. However, all will be considered for inclusion.

There are not only projects but also initiatives that might be overarching, such as GEO BON and GMES. Projects and initiatives are organised in three chapters, global, European and national. At the global level, they include the global initiatives as GEO BON to which this project might deliver input. They also include FP6 and FP7 project such as BIOPRESS and EBONE (European Biodiversity Observation Network, Bunce et al 2008) that have knowledge and data developed for direct use. They also include nationally funded projects such as HABISTAT (A classification framework for habitat status reporting with remote sensing methods, Vanden Borre et al. 2011) and projects at CIBIO (mapping biodiversity in Northern Portugal), UNIMIB, mapping Italian Landscape. The in situ and RS data and methodologies are considered as basic data for further use.

This document will remain open throughout the project as new projects might be starting and they might be willing to use results from BIO_SOS. These projects will be registered in this document as users of the BIO_SOS/GMES results.

2. On-going and previous initiatives and projects on biodiversity monitoring

2.1 Global initiatives

Title	Group on Earth Observations Biodiversity Observation Network
Short Name	GEO BON
Website/Contact	http://www.earthobservations.org/geobon.shtml
Duration	2009 - ongoing
Main Goals	<ul style="list-style-type: none"> By collaborating through GEO BON organisations make their biodiversity data, information and forecasts more readily accessible to policymakers, managers, experts and other users.
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> Exchange of protocols between countries and continents Sharing principles between countries, NGOs and institutions
Outputs BIO_SOS, useful for GEO BON	<ul style="list-style-type: none"> The results of the testing in BIO_SOS can be shared through GEO BON with other organisations

Title	Intergovernmental Panel on Biodiversity and ecosystem Services
Short Name	IPBES
Website/Contact	http://ipbes.net/
Duration	2012 – ongoing
Main Goals	The “Intergovernmental Platform on Biodiversity and Ecosystem Services” is a mechanism proposed to further strengthen the science-policy interface on biodiversity and ecosystem services, and add to the contribution of existing processes that aim at ensuring that decisions are made on the basis of the best available scientific information on conservation and sustainable use of biodiversity and ecosystem services. IPBES is proposed as a broadly similar mechanism to the Intergovernmental Panel on Climate Change (IPCC).
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> Not yet available, starting phase
Outputs BIO_SOS, useful for IPBES	<ul style="list-style-type: none"> If the pre-operational phase can be followed by operational work then the global application may help the inputs for IPBES assessments

Project title	Global Observation of Forest and Land Cover Dynamics
Short Name	GEOFC-GOLD
Website/Contact	http://www.fao.org/gtos/gofc-gold/
Duration	1997 – 2017
Main Goals	<ul style="list-style-type: none"> Providing a forum for users of satellite data to discuss their needs and for producers to respond through improvements to their programs; Providing regional and global datasets containing information on: <ul style="list-style-type: none"> Location of different forest types;

	<ul style="list-style-type: none"> ○ Major changes in forest cover; ○ Biological functioning of forests (this will help quantify the contribution forests make as absorbers and emitters of greenhouse gases). • Promoting globally consistent data processing and interpretation methods; • Promoting international networks for data access, data sharing, and international collaboration; • Stimulating the production of improved products. <p>Potential users of GOFC-GOLD products include global change researchers, international agencies, national governments, non-governmental organizations, and international treaties and conventions (such as the Framework Convention on Climate Change).</p>
Outputs useful for BIO_SOS	methods and implementation of RS systems that provide both research and operational information on a regular sustained basis.
Outputs BIO_SOS useful for this project	BIO_SOS chain of observations can contribute to access of local data

2.2 Europe-wide initiatives and projects

Title	European Topic Centre Spatial Information and Analysis
Short Name	ETC-SIA
Website/Contact	http://sia.eionet.europa.eu/ Co-ordinator Andreas Littkopf, email: andreas.littkopf@uma.es)
Duration	2011-2013
Main Goals	The European Topic Centre for Spatial information and Analysis, ETC/SIA, is supporting the European Environment Agency (EEA) in developing seamless European wide spatial reference data. ETC/SIA's main working area is the analysis of Land use and land cover. This includes monitoring temporal changes of land use and land cover in addition to analysing the environmental consequences. The work is structured in five working areas as shown below.
Outputs useful for BIO_SOS	Land monitoring in Europe, and more specific analysis of Land use and land cover, and seamless European wide spatial reference data.
Outputs BIO_SOS, useful for this project	A link should be made with ETC-SIA as BIO_SOS has to deliver GMES outputs that have to be integrated (like MS.MONINA).

Title	European Topic Centre – Biodiversity
Short Name	ETC-BD
Website/Contact	http://bd.eionet.europa.eu/
Duration	1995 – present
Main Goals	The ETC/BD is an international consortium working with the European Environment Agency under a framework partnership agreement. The main tasks of the topic centre are: <ul style="list-style-type: none"> • Assist the European Environment Agency in its task of reporting on Europe's environment by addressing state and trends of biodiversity in Europe • Provide the relevant information to support the implementation of environmental and sustainable development policies in Europe in particular for EU nature and biodiversity policies (DG Environment: Nature and Biodiversity) • Build capacity for reporting on biodiversity in Europe, mainly through the European Information and Observation Network (Eionet)
Outputs useful for BIO_SOS	Biodiversity monitoring results from the reporting and basic data to be used as historic reference
Outputs BIO_SOS, useful for ETC-SIA	The methods developed here should be integrated in EIONET Biodiversity observation system

Title	Global Monitoring for Environment and Security
Short Name	GMES
Website/Contact	http://www.gmes.info/

Duration	1998 - ?
Main Goals	GMES consists in a complex set of systems which collects data from multiple sources (earth observation satellites and in situ sensors such as ground stations, airborne and sea-borne sensors), processes these data and provides users with reliable and up-to-date information.
Outputs useful for BIO_SOS	Not applicable
Outputs BIO_SOS, useful for this project	BIO_SOS should deliver its results to GMES to let it be integrated with other products.

Initiative title	European Long-Term Ecosystem Research Network
Short Name	LTER
Website/Contact	http://www.lter-europe.net/
Duration	2004 – ongoing
Main Goals	<ul style="list-style-type: none"> to track and understand the effects of global, regional and local changes on socio-ecological systems and their feedbacks to environment and society to provide recommendations and support for solving current and future environmental problems.
Outputs useful for BIO_SOS	No outputs yet
Outputs BIO_SOS, useful for LTER	The approach and tools to developed in BIO_SOS could be used in the LTER sites as a common approach for monitoring

Project title	Supporting the Monitoring, Protection and Sustainable Management of our Environment
Short Name	GEOLAND-II
Website/Contact	http://www.gmes-geoland.info/
Duration	2008 – 2012
Main Goals	Geoland2 is carried out in the context of GMES, a joint initiative of European Commission (EC) and European Space Agency (ESA), which aims to build up a European capacity for Global Monitoring of Environment and Security. The ambition of the geoland2 consortium is to develop and demonstrate a range of reliable, affordable and cost efficient European geo-information services, supporting the implementation of European directives and their national implementation, as well as European and International policies. Thus, the GMES initiative is considered a unique opportunity to integrate existing technology with innovative and scientifically sound elements into sustainable services.
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> Land monitoring Biophysical parameters Seasonal change detection
Outputs BIO_SOS, useful for this project	<ul style="list-style-type: none"> The results of BIO_SOS should be integrated linked to GEOLAND data streams as it is focussing on operational monitoring.

Project title	Harmonised European Land Monitoring
Short Name	HELM
Website/Contact	http://www.fp7helm.eu/
Duration	2011 - 2013
Main Goals	HELM initiates a move that will make European land monitoring (LULC) more productive by increasing the alignment of national and sub-national land monitoring endeavours and by enabling their integration to a coherent European data system.
Outputs useful for BIO_SOS	National and sub-national monitoring activities
Outputs BIO_SOS, useful for this project	As HELM is developing a common data model for land use and land cover at the national and sub-national level, the tools developed in BIO_SOS might be a valuable input for the local component.

Project title	European Biodiversity Observation Network
Short Name	EBONE
Website/Contact	www.ebone.wur.nl
Duration	2008 – 2012
Main Goals	<ul style="list-style-type: none"> • The development of a cost effective system of biodiversity data collection at regional, national and European levels. • To develop a coherent system for data collection that can be used for international comparable assessments
Outputs useful for BIO_SOS	The General Habitat Categories can be used for mapping consistently in situ data for BIO_SOS. The methodology is actually applied.
Outputs BIO_SOS, useful for this project	Not applicable

Project title	A classification framework for habitat status reporting with remote sensing methods
Short Name	HABISTAT
Website/Contact	http://habistat.vgt.vito.be/
Duration	2007-2010
Main Goals	<ul style="list-style-type: none"> • To enhance the state-of-the-art classification framework. • To create a transferable platform which integrates novel and advanced remote sensing methodologies that are developed specifically for operational habitat reportage.
Outputs useful for BIO_SOS	Inclusion of the Habistat conclusions in the project (see VandenBorre et al 2011)
Outputs BIO_SOS, useful for this project	Not applicable

Project title	Multiscale Service for monitoring NATURA 2000 habitats of European community interest
Short Name	MS.MONINA
Website/Contact	http://www.ms-monina.eu
Duration	2011-2013
Main Goals	Supporting the GEO Biodiversity strategic target <ul style="list-style-type: none"> • State and change monitoring in key sensitive habitats (link to SBA ecosystems) • Harmonizing the various approaches of data collection, data integration, information provision and service • Conditioning of geospatial information for effective support of monitoring, management and reporting tasks • Dedicated translation of user needs into technical developments • Capacity building and training to utilize new technologies
Outputs useful for BIO_SOS	Outputs are being developed; as a sister project of BIO_SOS there will be exchanges and joint workshops
Outputs BIO_SOS, useful for this project	Outputs are being developed; as a sister project of MS.MONINAOS there will be exchanges and joint workshops

Project title	Linking pan-European land cover changes to pressures on biodiversity
Short Name	BIOPRESS
Website/Contact	http://www.biopress.ceh.ac.uk/ http://www.creaf.uab.es/biopress/studyareas.htm
Duration	2003-2005
Main Goals	The European Commission funded 'Global Monitoring for Environment and Security' project produced land cover change information (1950–1990-2000) from aerial photographs and tested the suitability of this for monitoring habitats and biodiversity in and around Natura 2000 sites in Europe. Changes in land cover were established through 73 window and 59 transect samples distributed across Europe. Although the sample size was too small and biased to fully represent the spatial variability observed in Europe, the work highlighted the importance of method consistency, the choice of nomenclature and spatial scale.
Outputs useful for BIO_SOS	BIOPRESS database of land cover changes in and around Natura 2000 sites in Europe (1950-1990-2000). Scale 1:100.000 for 73 windows and scale 1:20.000 for 59 transects. Methods for hindcasting. Project demonstrated that land cover flows inside Natura 2000 sites are different from outside.
Outputs BIO_SOS, useful for this project	Not applicable

Project title	Challenges in assessing and forecasting biodiversity and ecosystem changes in Europe
Short Name	ECOCHANGE
Website/Contact	http://www.ecochange-project.eu/

Duration	2007-2012
Main Goals	<p>ECOCHANGE has clear objectives relevant to the call: to assess and forecast changes in terrestrial biodiversity and ecosystems and changes in the ability of biodiversity and ecosystems to supply goods and services and to buffer against climate and land use change. This will be made possible by concentrating on improvements in three major areas, namely:</p> <ul style="list-style-type: none"> • the ability to predict biodiversity and species distribution patterns at a range of spatial scales sensitive to climate, land use and landscape structure • the simulation of ecosystem processes and responses to a range of scenarios enabling • the forecasting of expected changes in the biome distribution and its functioning, and • the assessment of consequences of global change for ecosystems and plant species to provide goods and services to the population of the European Community.
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> • Fragmentation and other landscape metrics at European Scales. • Tested new environmental predictors from analyses of remote sensing data. • Scenario maps for present (1961-90) and future (2070-99) climates at 10' resolution. • EU-wide and downscaled land use change scenario maps, as predicted from advanced socio-economic models of land use evolution • Results of tests of how the new remote-sensing based predictors improve the modelling of species and biodiversity. • A hierarchical modelling tool for simulating plant spread at various spatial and temporal scales, parameterized for a selected set of species and implemented into a niche-based species-distribution model and a DGVM • Assessment of the potential impacts of projected environmental changes on European terrestrial fauna and flora, with particular emphasis on the NATURA 2000 network
Outputs BIO_SOS, useful for this project	- Not applicable

Project title	Fire Detection and Management through a Multi-Sensor Network for the Protection of Cultural Heritage Areas from the Risk of Fire and Extreme Weather Conditions.
Short Name	FIRESENSE
Website/Contact	http://www.firesense.eu/
Duration	2009 – 2012
Main Goals	<ul style="list-style-type: none"> • To develop an automatic early warning system to remotely monitor areas of archaeological and cultural interest from the risk of fire and extreme weather conditions. These areas are usually surrounded by old and valuable vegetation or situated close to protected areas (e.g. Natura 2000), forest regions, which exposes them to an increased risk of fire • To develop fuel models on the basis of accurate vegetation maps from satellite data and on-site data (wind speed, slope, and aspect of the ground surface) to estimate the propagation of fire.
Outputs useful for BIO_SOS	A methodology for fire prevention within Natura 2000 sites and their surroundings to prevent biodiversity loss due to fires
Outputs	Automatic techniques for vegetation mapping from HR and VHR satellite

BIO_SOS, useful for this project	earth Observation data
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2.3 National monitoring initiatives and projects

Title	European Network of Heads of Nature Conservation Agencies
Short Name	ENCA,
Website/Contact	http://encanet.eu/home/
Duration	Ongoing
Main Goals	Cooperation and knowledge exchange between Nature Conservation Agencies in Europe on different interest fields, among other on biodiversity monitoring. On this theme the aims are: <ul style="list-style-type: none"> • Knowledge exchange between ENCA members from different agencies interested in linking remote sensing and traditional biodiversity monitoring • Identification of key problems/opportunities relating to the conservation agencies current and future use of remote sensing. • Identification of examples of 'best practice' in the joint development of field methods and remote sensing.
Outputs useful for BIO_SOS	Exchange with the ENCA members in countries that are member (Wales, the Netherlands, Italy)
Outputs BIO_SOS, useful for ENCA	Exchange of the knowledge developed in BIO_SOS to the agencies in ENCA

Project title	Sistema para el Seguimiento de los PAisajes Rurales ESpañoles
Short Name	SISPARES
Website/Contact	www.sispares.com
Duration	1997 – 2009
Main Goals	<ul style="list-style-type: none"> • Identification and characterization of the elements and processes that compose the landscape structure and organisation throughout the country, making use of the present state of the art of knowledge on the subject. • Spatiotemporal analysis of the elements and processes identified between 1956 and today, and its interpretation in light of changes in Land Use and policies that have influenced them. • Identification of landscape patterns and dynamics of the landscape that best explain the territorial diversity and its background causes, in order to formulate recommendations for planning and land management, from the perspective of nature conservation.
Outputs useful for BIO_SOS	Information on the background methodologies and analysis
Outputs BIO_SOS, useful for this project	Not applicable

Project title	Sistema de Informação e Monitorização da Biodiversidade do Norte de Portugal (Biodiversity Information and Monitoring System for the North of
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	Portugal)
Short Name	SIMBioN
Website/Contact	Joao Honrado at CIBIO http://cibio.up.pt jhonrado@fc.up.pt
Duration	2008 – 2010 (project follow-up started 2011)
Main Goals	To devise, set up and test an information system and thematic monitoring programs for habitats and biodiversity in the North of Portugal, as a pilot for a possible future national system.
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> Field data on the distribution of habitats and biodiversity at regional and local scales; Ground truth data for fine scale habitat mapping; Institutional framework for biodiversity monitoring at regional and national levels.
Outputs BIO_SOS, useful for this project	Integration of remote sensing with field data for detailed habitat and biodiversity monitoring in small scale (fine grain) landscapes.

Project title	Indicators, methods and protocols for reporting and monitoring the conditions of biodiversity and ecosystems in changing rural landscapes
Short Name	EcoSensing
Website/Contact	Joao Honrado at CIBIO http://cibio.up.pt ; jhonrado@fc.up.pt
Duration	2010 – 2013
Main Goals	To propose and test methodological improvements in several key components of biodiversity monitoring programs towards cost-efficiency and improved capacity to detect ecological change.
Outputs useful for BIO_SOS	<p>Methodological improvements in sampling and data collection for in situ campaigns;</p> <p>Field data on the distribution of habitats and biodiversity at regional and local scales;</p> <p>Models relating landscape attributes and biodiversity indicators.</p>
Outputs BIO_SOS, useful for this project	<p>Integration of remote sensing with field data for detailed habitat and biodiversity monitoring in small scale (fine grain) landscapes;</p> <p>Opportunities to test methodological improvements across a range of environmental conditions and pressures.</p>

Project title	Analysis of biodiversity in Mediterranean islands and Invasive Species in North Italy
Short Name	
Website/Contact	Emilio Padoa Schioppa at UNIMIB
Duration	2008 - 2012
Main Goals	Analysis of distribution of some invasive species (American slider turtle, <i>Trachemys scripta</i> ; American bullfrog <i>Rana catesbeiana</i> , crayfish, <i>Procambarus clarkia</i>);
Outputs useful for BIO_SOS	<p>Analysis of anthropic pressure on biodiversity distribution</p> <p>Criteria for ecological niche modelling (i.e. use of maximum entropy</p>

	systems, like MAXENT)
Outputs BIO_SOS, useful for this project	Linkage between habitat / GHC and biodiversity

Project title	Surveillance and Conservation Status Assessment for Species and Habitat types of Community Interest in Greece
Short Name	Not yet available
Website/Contact	Not yet available
Duration	Expected to start in March of 2012-2015
Main Goals	<ul style="list-style-type: none"> • To undertake surveillance of habitat types and species of Community Interest (listed in Annexes I, II, IV & V). • To prepare the National Report required to be sent to the European Commission every 6 years (in 2013), according to Article 17 of the Habitats Directive inside and outside the Natura 2000 network depending on the distribution of the habitats and species • To establish a long-term monitoring system; the field monitoring data and the field data on conservation status assessment of habitat types and species will be the input for the compilation of the 6-years Report.
Outputs useful for BIO_SOS	<ul style="list-style-type: none"> • Field data on the distribution of habitats and biodiversity at regional and local scales; • Ground truth data for fine scale habitat mapping; • Institutional framework for species (plants, vertebrates, birds, invertebrates) and habitat types (of European and National Importance) monitoring at regional and national levels.
Outputs BIO_SOS, useful for this project	Integration of remote sensing with field data for detailed habitat and biodiversity monitoring in small scale landscapes.

Project title	Development of large scale (1:5000) Spatial Data infrastructure for the terrestrial Natura 2000 sites in Greece
Short Name	Not yet available
Website/Contact	Not yet available
Duration	Expected to start in March of 2012-2015
Main Goals	<ul style="list-style-type: none"> • The accurate delineation of the outer boundaries of the terrestrial Natura 2000 Sites (SCI & SPA) • Update, description, delineation and evaluation of the habitat types in the terrestrial SCIs and SPAs of the Natura 2000 network in Greece, based on colored ortho-photos of high accurat (LSO) in scale 1:5.000 and in field work.
Outputs useful	<ul style="list-style-type: none"> • Habitat types maps for the SCIs and SPAs of the Natura 2000

for BIO_SOS	<p>network</p> <ul style="list-style-type: none"> • Field data on the distribution patterns of habitat types at local scales; • Ground truth data for fine scale habitat types mapping;
Outputs BIO_SOS, useful for this project	Integration of remote sensing with field data for detailed habitat types monitoring in small scale landscapes.

Project title	National Inventory of Landscapes in Sweden
Short Name	NILS
Website/Contact	http://www.slu.se/nils
Duration	2003 – ongoing
Main Goals	NILS is a nation-wide environmental protection programme that monitors the conditions and changes in the Swedish landscape. It collects data and performs analyses of natural landscape changes, degree of anthropogenic impact, prerequisites for natural biological diversity and ecological processes at landscape scale.
Outputs useful for BIO_SOS	The knowledge that has been gained on the use of false colour photographs, RS and in situ data
Outputs BIO_SOS, useful for this project	BIO_SOS results might help NILS to more efficient monitor especially remote areas and at intervals between the in situ observations.

Project title	Great Britain Countryside Survey
Short Name	GB-CS
Website/Contact	http://www.countrysidesurvey.org.uk/
Duration	1978-2007 and ongoing
Main Goals	The countryside is sampled and studied using rigorous scientific methods, allowing us to compare new results with those from previous surveys. In this way we can detect the gradual and subtle changes that occur in the UK's countryside over time and inform policy makers
Outputs useful for BIO_SOS	The in situ knowledge can be used in BIO_SOS. GB-CS has extensive experience in data handling, quality control, the use of statistics and reporting.
Outputs BIO_SOS, useful for this project	The methods to be developed in BIO_SOS can help to continue GB-CS monitoring as continuity is under pressure due to budget problems. It is the intention of DEFRA to make more use of RS information.

Project title	Northern Ireland Countryside Survey
Short Name	NICS
Website/Contact	http://www.doeni.gov.uk/niea/biodiversity/nh-research/nicountrysidesurvey-2.htm
Duration	Ongoing
Main Goals	NICS assesses the distribution and condition of land habitat types and provides reliable estimates of how land cover changes over time. This is

	<p>accomplished using the survey of a random selection of quarter kilometer squares; the location of which are kept confidential to maintain the scientific integrity of the survey methodology.</p> <p>Results provide a consistent basis for analysis of the effects of countryside, agricultural and other policies, pressures or drivers of change upon the fabric of the Northern Ireland countryside.</p>
Outputs useful for BIO_SOS	The in situ knowledge can be used in BIO_SOS as NICS has extensive experience in data handling, quality control, the use of statistics and reporting.
Outputs BIO_SOS, useful for this project	The methods to be developed in BIO_SOS can help to continue GB-CS monitoring.
Project title	Nationwide Monitoring and Assessment Programme for the Aquatic and Terrestrial Environments
Short Name	NOVANA
Website/Contact	http://www.dmu.dk/en/monitoring/novana/
Duration	2004-2006
Main Goals	<p>With NOVANA, Denmark aims to carry out integrated systematic monitoring of the aquatic and terrestrial nature and environment.</p> <ul style="list-style-type: none"> • Monitoring of terrestrial natural habitats is focused mainly on international obligations with the main emphasis on the EU Habitats Directive. • NOVANA species monitoring comprised in 2006 a total of seven species of vascular plants, mosses, insects and mammals listed in Annex II and IV of the Habitats Directive. • For most species, the monitoring results of 2006 and 2004-2005 will serve as the baseline with which the future monitoring results will be compared with regard to assessment of the trend in their population size and range.
Outputs useful for BIO_SOS	There is no expected output from NOVANA that is at present use for BIO_SOS
Outputs BIO_SOS, useful for this project	The methods to be developed in BIO_SOS can help to continue NOVANA monitoring as there is at present no continuity.

Project title	Spatial Indices for Land Use Sustainability
Short Name	SINUS and follow-up projects
Website/Contact	Thomas Wrbka at University of Vienna
Duration	1996-2005
Main Goals	To elaborate spatially explicit indicators for mapping ecological sustainability in Austria
Outputs useful for BIO_SOS	No outputs as there is no case study in Austria
Outputs BIO_SOS, useful for this project	The methods to be developed in BIO_SOS can help to continue approaches as started with SINUS

Project title	Monitoring system Dutch National Forestry Services
Short Name	SBB monitoring
Website/Contact	
Duration	Every terrain is being monitored once every 10 years
Main Goals	Monitoring of progress in terms of nature conservation, wood production, recreation & cultural history
Outputs useful for BIO_SOS	SBB has a very systematic approach for monitoring with good protocols.
Outputs BIO_SOS, useful for this project	Land cover and habitat maps

Project title	Monitoring system Natuurmonumenten (Nature Foundation)
Short Name	Monitoring Natuurmonumenten
Website/Contact	-
Duration	Monitoring at least once in 18 years of their terrains
Main Goals	Monitoring target species, abiotic conditions, etc.
Outputs useful for BIO_SOS	Limited use since it seems that most of the activities are not done in a very structural way, but BIO-SOS could feed Natuurmonumenten with information
Outputs BIO_SOS, useful for this project	Land cover and habitat maps

Project title	Landelijke Vegetatie Database (LVD) / SynBioSys
Short Name	LVD
Website/Contact	http://www.synbiosys.alterra.nl/natura2000/googlemapslvd.aspx
Duration	Collection of vegetation releves since 1930
Main Goals	To collect vegetation releves, that can feed the knowledge system SynBioSys and helps to describe Dutch plant communities, their succession and their distribution
Outputs useful for BIO_SOS	Vegetation releves are useful as in-situ component
Outputs BIO_SOS, useful for this project	Not clear yet

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