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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

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**Implementation of Recommendation No. 110/2004
on minimising adverse effects of above-ground electricity
transmission facilities (power lines) on birds**

REPORT BY THE GOVERNMENTS

*Document prepared by
the Directorate of Culture and Cultural and Natural Heritage*

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BOSNIA AND HERZEGOVINA / BOSNIE-HERZÉGOVINE

REPORT REGARDING THE IMPLEMENTATION STATUS OF RECOMMENDATION NO. 110 (2004) ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS IN BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina is a State comprising of two entities, Republika Srpska and Federation of Bosnia and Herzegovina, each with a high degree of autonomy. Brčko District of BH was established as a separate, self-governing administrative unit. As the State Constitution, adopted on 1 December 1995, contains no provisions for the environment, it is understood that environmental protection is a responsibility of the entities unless they agree otherwise. Article 9 of the Law on the Ministries and Other Administrative Bodies of Bosnia and Herzegovina assigns responsibilities for environmental protection to the Ministry of Foreign Trade and Economic Relations. Specifically, it gives it “responsibility for operations and tasks within the jurisdiction of Bosnia and Herzegovina relating to the definition of policy, fundamental principles, coordination of activities and harmonizing the plans of the entities’ governmental bodies and institutions at the international level” in agriculture, energy, environmental protection, and the development and the exploitation of natural resources.

At the level of entities, both Federation of Bosnia and Herzegovina and Republika Srpska have ministries in charge of environment protection: Ministry of environment and tourism of Federation of Bosnia and Herzegovina and Ministry for spatial planning, civil engineering and ecology of Republika Srpska. Both entities have their own set of laws regarding environment protection (set of six laws). These entity laws are more or less harmonized.

Report by the Ministry of environment and tourism of Federation of Bosnia and Herzegovina

Ministry of environment and tourism of Federation of Bosnia and Herzegovina has made a new Law on nature protection of Federation of Bosnia and Herzegovina and it is currently in the phase of preliminary draft. It’s article 47. regulates the following:

“Poles and technical components of power lines are manufactured in a way that is safe for birds and protects them from electric shocks.

On the poles and technical components of power lines which were constructed before this law entered into force, and which represent a threat for the birds’ safety, all necessary measures will be conducted in the period of ten years from the day this law enters into force, in order to protect the birds from electric shocks.

Above mentioned regulations do not refer to the above-ground power lines for railways.

Technical conditions for the construction of poles and technical components of power lines will be regulated by the Rulebook drafted by the Ministry of energy, mining and industry of Federation of Bosnia and Herzegovina, with the agreement of the Federal ministry of environment and tourism”.

Report by the Ministry for spatial planning, civil engineering and ecology of Republika Srpska

Legislation of Republika Srpska regarding the environment protection and hunting incloses only general provisions concerning ban of agitation, chasing and killing of animals, as well as the destruction of their habitats. These provisions are inclosed in Article 22. paragraph 7. and Article 24. of the Law on nature protection of Republika Srpska (“Official gazette of Republika Srpska”, no. 113/08), as well as Articles 13. and 14. of the Law on hunting (“Official gazette of Republika Srpska”, no. 60/09) which regulates measures for ban of hunting, use, destruction, catching of nests, hatch and eggs of protected and unprotected wildlife.

Apart from the above mentioned regulations, there is no any other positive regulation in Republika Srpska which regulates special measures that are related to the reduction of adverse effects

of the above-ground electricity transmission facilities (power lines) on animal species. Special regulations dating from the former Socialist Federal Republic of Yugoslavia only determine general measures for the protection of human health during construction of above-ground electricity transmission, but these are not in a compliance with Recommendation no. 110 (2004). Ministries of energy are in charge of their implementation.

BULGARIA / BULGARIE

IMPLEMENTATION OF THE RECOMMENDATION 110/2004 ON MINIMIZING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS IN BULGARIA

General information and survey data

Collisions and Electrocution of birds on power lines is identified to be a problem in the 80s. High stork mortality on power lines in Bulgaria has been treated in an article of Nankinov (1992). Three more papers on the problem were published in the last 10 years. Stoychev and Karafeizov (2004) analyzed the Bulgarian power line network and estimated a significant portion of 20 kV lines present an electrocution hazard. They have estimated that there are about 45 000 km of power-lines that presents electrocution hazard for birds. A quantitative study by Demerdzhiev et al. (2008) found out significant mortality in several SPA (Natura 2000 sites for birds) in the south of Bulgaria. The study focused on 20 kV power lines within the SPAs totaling a length of 139.3 km. The authors found 105 dead birds during four months research. Most of them were birds of prey and corvids. Electrocution was suspected to cause 81 of the fatalities while the rest were assumed to be due to collisions. The authors have analyzed the level of risk that different type of power line poles present for birds. They conclude that there are two types of poles that caused the majority of the fatalities. Those poles are about half of the 20kV network in Bulgaria with total length of those power lines of about 22 000 km. Another study carried out in the same region (SPA Sakar) achieved similar results - 44 dead birds found during four months research along 45 km of 20 kV powerline (Gerdzhirov & Demerdzhiev, 2009).

Legislation.

In Bulgaria there is no a special legal obligation adopted in order to implement the Recommendation 110/2004. A ban for construction of new power lines which are dangerous for the birds includes some orders for designation of NATURA 2000 special protected areas (SPAs). Requirements for construction of underground power lines when appropriate are imposed by EIA decisions issued for realization of wind power parks. On the side of the electro-distribution companies voluntary activities are implemented aiming bird conservation and decreasing mortality, causing by power lines.

The lack of categorical requirements for bird friendly facilities under building new and renewing of the existing power lines sometimes is a reason for the risk increasing in some regions. It is estimated that less than 5% of lines are bird-friendly.

For decreasing of this threat it is necessary to implement the legislative and preventive mechanisms as follows:

- a) restriction/ban of the most dangerous types of pole
- b) use of state-of-the-art recommended technical standards for bird safety for new and retrofitted facilities
- c) encouraging underground location of cables where possible in technical and financial terms; or
- d) imposing of appropriate requirements upon planning and during projects realization by EIA decisions in locations of particular importance to birds and where birds may be vulnerable to collisions.

Measures undertaken to mitigate the problem

First connections were established between the State electricity company and some conservation-minded individuals before 1989. More active actions to mitigate the problem were carried out in the last 5 years, by participation of the Regional Inspectorates of the Environment and water, NGOs and electro-distribution companies.

Scientific research as mentioned above were carried out. Case based meetings are organized to discuss mounting of White Stork (*Ciconia ciconia*) and Saker Falcon (*Falco cherrug*) nest platforms. Some poles are insulated in bird migratory ways and on power lines with high number of outages. More than 100 White stork nests on low power lines were successful move to platforms above the poles.

Measures undertaken in the projects frames

BSPB/BirdLife Bulgaria carried out a study on the bird mortality in six SPAs in 2008-2009 as a LIFE project action. The poles identified as dangerous within 5 km radius of Imperial eagle (*Aquila heliaca*) nests will be insulated in the next two years in collaboration with EVN Company. The satellite tracking implemented in the frame of the same LIFE project proved that electrocution is among the threat for the globally threatened Imperial eagles in Bulgaria since a young eagle bird was found dead on a 20 kV pole not far from the nest. A meeting attended by EVN company staff, BSPB and BirdLife Hungary was held in order to present Hungarian experience and discuss technical solutions. Another LIFE project launched by BSPB/BirdLife Bulgaria in 2010 includes actions to mitigate collisions and electrocutes of birds in the area of Bourgas wetlands. Project activities includes identification of dangerous power lines within one kilometer of the lakes, insulation of dangerous poles and mounting of bird diverters in order to reduce collisions. The actions will be done in collaboration with EVN company.

Surveys and activities for reduction the effect of the power lines on the raptors are implemented under the projects of Green Balkans Federation of nature conservation NGOs, including in the frame of the project *Conservation measures for target species of the EU Birds Directive – Lesser Kestrel (Falco naumanni), Black Vulture (Aegypius monachus), and Imperial Eagle (Aquila heliaca) in their main habitats in Bulgaria*, financed by Operational Programme Environment

Conclusions

The analysis shows that most of the middle tension voltage (20 kV) power line network presents significant electrocution hazard for birds. Apart from Ministry of Environment and Water an NGO, Bulgarian Society for the Protection of Birds (BSPB BirdLife Bulgaria) and four companies are involved in the process of mitigating electrocution or collision problems: the National Electric Company which is the owner of high voltage lines, and EVN, CEZ and EON possessing middle voltage lines. It is necessary to carry out serious discussion on the technical solutions, strategic mitigation efforts and legislative measures by the authorities, companies and conservationists.

However first steps to mitigate the problem has been undertaken. Some poles were insulated by electricity companies in order to reduce outages caused by bird electrocutions. White stork nests are safeguarded through mounting nest platforms. NGOs initiated projects aimed at studying mortality, insulation of the most dangerous poles in key SPAs and transfer experience.

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CROATIA / CROATIE

REPORT ON THE IMPLEMENTATION OF RECOMMENDATION NO. 110 (2004) ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS IN CROATIA

In regards to the follow-up of Recommendation No. 110 (2004) on minimising adverse effects of above-ground electricity transmission facilities (power lines) on birds, the Ministry of Culture, as the competent authority for nature conservation, would like to inform you on the status of implementation in Croatia as follows:

In the Strategy and Action Plan for the Protection of Biological and Landscape Diversity of the Republic of Croatia (OG 143/08), there are 3 Action Plans addressing this issue:

- AP 6.10.1.2 Continue to incorporate nature protection requirements and measures, and ecological network conservation guidelines when planning locations of power supply/distribution facilities in spatial plans
- AP 6.10.1.3 Strengthen the principles of conservation of biological and landscape diversity in the course of development of the environmental impact study in relation to the potential impact of construction of power plants and other energy supply/distribution facilities on overall biological and landscape diversity, particularly in the ecological network area
- AP 6.10.1.9 Apply technical solutions in the course of construction of overhead power transmission lines and replacement of worn-out electricity poles and lines within the existing network in order to minimise bird mortality (collisions, electrocution).

According to the Article 88 of the Nature Protection Act (Official Gazette 70/05, 139/08), towers and technical components of medium-voltage transmission lines shall be constructed in such a manner as to protect birds from electric shock. On towers and technical components built prior to the entry into force of this Act and endangering birds to a high degree, measures necessary for protection of birds from electric shock shall be carried out within five years (June 2010).

In October 2007 the Ecological Network of the Republic of Croatia was proclaimed (Regulation on Proclamation of the Ecological Network, OG 109/07) on 47% of the land territory and 39% of the sea territory. The Ordinance on Nature Impact Assessment, adopted in July 2007 (OG 89/07), imposes the obligation to assess the impacts of plans or projects that, either alone or in combination with other projects or plans, may have the significant impact on species and habitats listed as sites' target features and impacts on overall site integrity.

The Ministry of Culture, as the competent authority for nature impact assessment (NIA), has requested that HEP-Operator distribucijskog sustava d.o.o. (HEP ODS), a distribution system operator company responsible for delivery of electricity in Croatia, conducts a NIA procedure for new towers and technical components of medium-voltage transmission lines that may have a significant impact on ecological network sites.

According to the Regulation on Environmental Impact Assessment (OG 64/08), for electricity transmission facilities of 220 kV or more the environmental impact assessment is obligatory.

The paper "Supplement to the standardization of technical solutions for bird and animal protection on medium voltage electrical power switchgears" (Bošnjak, J. and Vranić, M., 2005) in Croatian was presented at the 7th Conference of the Croatian Committee of International Council on Large Electric Systems (CIGRÉ) in 2005. It describes possible technical solutions to increase bird safety, including the ones presented in the NABU's "Electrocution: Suggested Practices for Bird Protection on Power Lines" (UNEP/CMS/Inf.7.21).

HEP ODS has reported that they developed a system for monitoring the interruptions and failures in electricity distribution network. According to their report, the analyses of these events in the medium-voltage network show that the incidents in which birds (mostly species with a large wing span) caused the failure occur rarely. The locations of these incidents mainly correspond with the areas of

ecological network. HEP ODS is undertaking activities to develop appropriate technical solutions for the protection of birds from electrocution. As an example they reported the technical solutions used at two different locations in Croatia.

At Lonjsko polje Nature Park measures for bird safety were applied on sections of two 10/20 kV electricity transmission lines going through the protected area:

a. 10/20 kV electricity transmission line Krapje – Vodovod Lončarica

- 2.672 m in length, aluminium-steel 3x50/8 mm² power line, 35 concrete power poles (11m high), built in 1994
- on the whole length of the transmission line, the insulating caps were installed on the insulators and the insulating hoods were placed on the conductors (1m in length on each side from the insulator) and fastened with PVC strings below the power line (Figure 1).



Figure 1 (Photo: HEP ODS)

b. 10/20 kV electricity transmission line Lipovljani – Novska, section Nova Subocka - Krapje

- 8.000 m in length, aluminium-steel 3x95/15 mm² power line, concrete 11m high power poles and steel lattice-type strain poles, built/reconstructed in 2004
- on the 500m long section of the transmission line (6 power poles) going through Lonsko polje Nature Park, the insulators and conductors were insulated with 1-piece insulation protection fastened with PVC strings (Figures 2 and 3).



Figure 2 (Photo: HEP ODS)



Figure 3 (Photo: HEP ODS)

In Blato area in Zagreb, before the installation of bird protection, the bird-induced energy supply cut-offs happened often.

To protect birds from electrocution the insulated 10/20 kV conductors were installed on the tower transformer station, on the junction of the medium voltage lines with the transformer - power lines across the upright insulators and medium-voltage fuses, conducting transformer insulators (Figure 4).

On the power poles where the medium-voltage conductors transfer to cables, the insulating hoods, insulating caps and insulated conductors were installed for the protection of birds and other animals from electrocution (Figure 5).



Figure 4 (Photo: HEP ODS)



Figure 5 (Photo: HEP ODS)

In 2004, the Ministry of Culture and the Hrvatska Elektroprivreda d.d. (HEP), a national electricity company, concluded a memorandum of cooperation in implementing the measures to protect the White Storks (*Ciconia ciconia*). HEP took a commitment to ensure favourable nesting conditions for white storks at the locations that are in direct contact with the electricity distribution system. The specific procedures how to set up nest carriers and transfer nests have been determined in cooperation with the ornithologists, and since then the nest carriers are being installed in all white stork's habitats.

If the stork's nest is on the medium-voltage transmission facilities (10/20 kV electricity transmission power poles or the 10/20 kV tower stations), the additional pole with the nest carrier is installed in the close vicinity of the existing nest. Then the nest is transferred to the new pole with a crane, and on the old location the rejectors are installed (Figures 6 and 7).



Figure 6 (Photo: HEP ODS)



Figure 7 (Photo: HEP ODS)

If the nest is on the low-voltage transmission facilities, the higher pole with the nest carrier is installed and the nest is transferred to the vertical part of the pole (Figures 8 and 9).



Figure 8 (Photo: HEP ODS)



Figure 9 (Photo: HEP ODS)

For any additional inquiries, please feel free to address us again.
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CZECH REPUBLIC / RÉPUBLIQUE TCHÈQUE**IMPLEMENTATION OF RECOMMENDATION NO. 10/2004 OF THE CONVENTION ON THE
CONSERVATION OF EUROPEAN WILDLIFE AND NATURAL HABITATS (BERN CONVENTION)
STANDING COMMITTEE ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND
ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS
(2009-2010)**

There is more than 750,000 electric poles (conductor of voltage 22-35 KV and 110kV, 220kV, 400 kV) with overall length of 70,000 km in the Czech Republic. Most of the poles are very dangerous for birds, mainly due to use of unsuitable, old-fashioned technologies.

Since 2004, there has been an obligation with respect to the bird protection against electrocution, pursuant to Act No. 114/1992 Gazette on the Protection of Nature and the Landscape, as amended later. The section 5a, Article 6 of the Act obliges anybody who constructs or reconstructs above-ground high-voltage line to furnish it with protective means, effectively preventing killing of birds by electric current.

By building, reconstructing or operating electric poles of above-ground electricity transmission facilities which poses the risk of death or injuring wild birds, the specific provisions of the above Act might be affected – mainly Article 5a, paragraph 1 and 3 on the protection of wild birds as well as provisions of Article 50 of the Act which deals with the conservation of Specially Protected birds - mainly provision on protection of the latter in all stages within their development and that on prohibiting harmful disturbances during ontogenesis of Specially Protected wild animals.

Namely, Act No. 114/1992 Gazette, as amended later, reads as follows: “(1) All plant and animal species shall be protected from destruction, damage, collection or capture which leads or might lead to endangering the existence of these species or to their degeneration, to impairment of reproduction ability of the species, to extinction of the population of the species or to destruction of the ecosystem of which they are a part. In the case of violation of the protective conditions, a Nature Conservancy authority shall be authorized to prohibit or limit the disturbing activity.

(3) During effecting agricultural, forestry and construction works, during water-management alterations, in transport and the energy industry, natural and legal persons shall be obliged to proceed in a manner that will not cause an excessive destruction of plants and injury to or death of animals, or destruction of their habitats, which can be prevented by technically and economically available means and tools. If the liable person does not do it itself, the Nature Conservancy authority shall order provision or use of such means.”

In case when building or reconstructing power lines of above-ground facilities could cause damage in the Specially Protected Areas or in the wider/non-reserved landscape, the Nature Conservancy authority is obliged to specify the conditions of the activities or prohibit the building or construction at all.

Act No. 183/2009 Gazette on Town and Country Planning and on Building Code (the Building Act), as amended later, specifies that the power lines might be an object of planning materials and planning documentation. Nature Conservancy authorities take part in negotiations on the documentations, pursuant to Act No. 114/1992 Gazette, as amended later. In case of building new lines or reconstruction of existing ones – there is a standard procedure of issuing building permit (defined by the Act) by a competent authority during which the Nature Conservancy authority takes a position.

The Act No. 100/2001 Gazette on the Environmental Impact Assessment (EIA) specifies that intention for building or reconstruction of above-ground electricity transmission lines is assessed in the category as “impact” which falls under the conditions of the Act and therefore scoping, screening and assessment of impacts on the environment (including announcement, documentation, expert opinion etc.) has to be carried out. The Nature Conservancy authority takes a position during all phases in the procedure.

The Ministry of the Environment of the Czech Republic is currently developing guidelines for purposes of engaging the respective Nature Conservancy authorities for involving in the issue and issuing an obligatory opinion. Any Nature Conservancy authority should, according to these guidelines, when assessing the intention of a natural or legal person to build or reconstruct the electricity power lines, assess the appropriateness of the intent in the landscape – in order to minimize the collision of birds and the wires - and the technical specificities of such intent in order to minimize injuries of birds due to electric discharge. The guidelines also include annexes with figures of “safe power poles types” as described in the Annex to the Recommendation 110 (2004) – recommended technical standards for bird safety for new and retrofitted facilities. It also presents pictures of various dangerous pole types. Other annexes will describe the basic rules of placing of lines and provides a list of Specially Protected birds sensitive to collisions. In the Annex 3, the pictures of accessories/elements for avoiding the collisions with conductors will be added. Only with those types the project can be considered to be assessed in a second phase. There will be special conditions when erecting new poles and routing lines into a Specially Protected Area as well (see below).

There has been a monitoring scheme running which shows that thousands of birds are killed every year due to electric lines in the Czech Republic. The first information on the topic originated from the 1970s: since that time some progress has been made. In the 1980s, one energetic company started to use “benches” – horizontal bars approx. 0.5m above the top of insulators (ČMELÍK *et al.* 1997). Since that time plastic safety elements such as “racks” (on the picture on the right, or *cf.* HLAVÁČ 2009); or other plastic covers on the insulators top (caps) have been applied in the field. Nevertheless, the plastic elements cause some serious problems, *e.g.* because of their limited lifetime,



In 1998-2001, in some parts of the Czech Republic, 8,000 poles together more than 700 km of lines were retrofitted: the measures were funded from the Landscape Management Programme implemented by the Ministry of the Environment of the Czech Republic. Mainly sites with the occurrence of the Peregrine (*Falco peregrinus*) and the Saker (*Falco cherrug*) – mostly in southern Moravia, eastern, southern and northern Bohemia – were retrofitted.

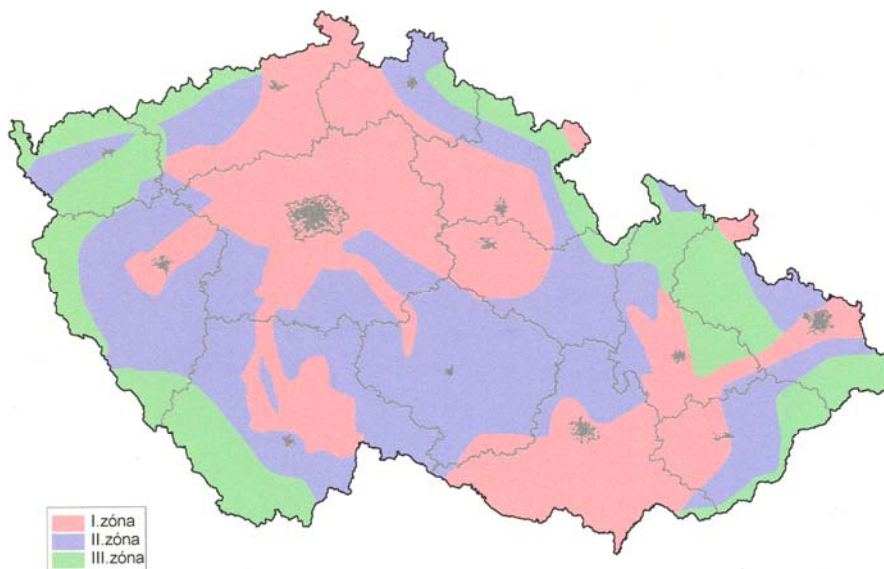


The best way is to use a special type of consoles which almost exclude the injury – *e.g.*, the console type “hook” (on the picture on the left) or poles with suspended insulators. According to the latest development, another type of console (Delta Variant console type) was approved by the Nature Conservancy authority – the Agency for Nature Conservation and Landscape Protection of the Czech Republic. The Czech energetic companies consult with the respective Nature Conservancy the most important areas with high bird density.

Photos © P. Křížek

In 2003, the Czech Republic was divided into 3 zones according to birds’ density and lines density:

- Zone I – areas with high bird density, important migratory flyways, important wintering sites, areas with occurrence of Specially Protected birds which are under the highest risks possessed by power lines, mostly in lowlands (red colour).
- Zone II - areas of medium elevations/highlands or submontane areas, mostly harbouring wintering sites only of the sub-national importance, the bird density being not so high there (blue colour on the map).



- Zone III – mostly border mountain areas; low bird as well as electricity transmission density (green colour).

Source: KŘÍŽEK 2003, 2007

In the Czech Republic, most of 40 SPAs, declared pursuant to European Community's Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive), as amended later, are situated within the Zone I: 23 of 40 SPAs were classified as the priority areas, possessing the highest risk to bird fauna (KŘÍŽEK 2003, 2007).

Recently, the Czech Energetic Company (ČEZ), Inc. as the largest energy and heat producer supplier in the Czech Republic has already displayed some positive shifts. It has agreed that till 2013, it will retrofit all conductors in the SPAs and also in other parts of the Czech Republic – particularly in areas with high bird density, e.g. in the Moravskoslezské Beskydy/Moravian-Silesian Beskids Mts. From a point of view of possible bird collision with power lines, the CEZ is assessing 26 of 40 SPAs i.e. approx. 3,300 km of wires/lines, and is going to provide with the appropriate equipment not only new conductors, but also the existing ones.

Act No. 458/2000 Gazette on Energy, as amended in 2009, newly specifies energy distributors' obligation to implement technological steps to prevent birds from collision and injuries on all overhead power lines until 2025.

In 2001, Ochrana fauny ČR/Conservation of Fauna of the Czech Republic, the nature conservation NGO, held a very expressive exhibition called *The Light for Prague*. Decaying bird cadavers urgently highlighted the risk possessed to birds from above-ground electricity transmission facilities, particularly from so-called poles of the death. The shock raised a huge public awareness of killing birds at transmission power lines: more than 130,000 visitors came in Prague to see victims of such collisions. The exhibition triggered not only the necessary changes in national legislation, but also stimulated technological, sometimes expensive measures to be taken to significantly reduce or halt bird mortality caused by electricity power lines. With the International Year of Biodiversity, namely in May–October 2010, the exhibition *The Light for Prague after Ten Years* presents to visitors the issue, both achievements and failures, again at the famous National Museum building in the Prague downtown.

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ESTONIA / ESTONIE

**NATIONAL REPORT OF ESTONIA ON THE BERN CONVENTION
STANDING COMMITTEE RECOMMENDATION No. 110 (2004)
ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY
TRANSMISSION FACILITIES (POWER LINES) ON BIRDS**

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When assessing bird mortalities in Europe due to the electric transmission lines the electric transmission line densities should also be considered. In Estonia some facts need to be taken to account. Population of Estonia is about 1 340 000 which means low population densities (about 29 people/km²), of all the population 69% live in urban areas (and 30% of the population lives in the capital). Which means relatively small amount of electricity transmission facilities in Estonian nature and that includes important bird areas.

Report to recommendation no 1:

Where have been several actions to take appropriate cost-effective measures to reduce bird mortality from electric transmission facilities. One is that were economically possible the old air power lines have been replaced with under ground power lines and this work is continuing. In Estonia there are several companies responsible for electric transmission network in Estonia. They follow the Electricity Market Act and also several environmental acts. The main company with transmission network is Jaotusvõrk OÜ which is responsible for ca 60 000 km of power lines. The Jaotusvõrk OÜ has 11 716 km (20%) of underground power lines and the number is slowly but steadily increasing as the change to the underground lines is expensive.

The air power lines have had probably the most effect on the white stork (*Ciconia ciconia*) in the breeding season. The white stork, which has tendency to make nests on power poles, have had mortalities because of power lines. To reduce the effect of power lines on white stork population the power companies have done nest relocation work and also built 200 safe artificial nest bases which have been quickly colonised.

Report to recommendation no 2:

As reported in the previous paragraph the installing of underground power lines is being done in Estonia.

In areas which are Special Protection Areas (SPAs) or Special Areas of Conservation (SACs) all proposed activities which alone or in conjunction with other activities may potentially significantly affect the Natura 2000 site environmental impact assessment is mandatory. Also outside of Natura 2000 network environmental impact shall be assessed upon application for a development consent if the proposed activity which is the basis for application for development consent which potentially results in significant environmental impact. Also in strategic planning a strategic environmental assessment shall be carried out during the preparation of a strategic planning document before its adoption by a legal act, if the document is prepared for energy or is the basis for activities which are likely to significantly affect a Natura 2000 site. Therefore if new big transmission networks are planned, environmental assessment is carried out and if environmental concerns are witnessed mitigating measures are taken. Where possible underground power lines and safer poles are used.

Report to recommendation no 3:

Where economically possible overhead power lines are being replaced by underground lines. Many of the important SPAs are in remote areas with very low population densities where transmission network is rare and also the effect of overhead power lines is low.

Report to recommendation no 4:

In Estonia we collect the info of collisions and electrocutions of protected species. As states the conservation Act § 63 the person who finds a dead specimen of an animal species included in the protected category I or II shall immediately inform the Environmental Board of the finding. The Environmental Board keeps the registry of the dead found protected species specimens. Also injured animals are the responsibility Environmental Board. Nature Conservation Act states that the restoration of the vitality of a sick or injured animal shall be organised by the Environmental Board. This also mostly means animals of the protected species and or larger animals as they are more noticed by people and therefore more often referred to Environmental Boards' Nigula Wildlife Rehabilitation Centre. Specimen brought to Nigula Wildlife Rehabilitation Centre are registered, the species, locality and injury type is noted.

Report to recommendation no 5:

See previous paragraphs.

Person compiling the report:

Merike Linnamägi
Nature Conservation Department
Ministry of the Environment

EUROPEAN COMMISSION / COMMISSION EUROPÉENNE

FOLLOW-UP OF RECOMMENDATION NO. 110 (2004)
ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND
ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS
DG ENV, Bruxelles, 5 July 2010

Regarding a follow-up of Recommendation No. 110 (2004), the Commission developed **action plans for the Birds Directive Annex I bird species** considered as "Priority for funding under LIFE"¹.

Whereas there is no list of 'priority' bird species given in Annex I of the birds Directive, the Ornithological Committee² has agreed a list of species which are considered as priority for the purpose of LIFE Nature funding. This includes all globally threatened species that regularly occur in the European Union.

Since 1993 the European Union has supported the development of action plans for priority birds. These plans have been prepared by BirdLife International. The work for waterfowl has been undertaken in partnership with Wetlands International.

The plans are intended as tools to identify priority measures for the conservation action to halt and restore the populations of Europe's most endangered bird species. They provide information about status, ecology, threats and current conservation measures for each species. This enables the clear definition of priority objectives and a programme of prioritised actions for each species.

They are the result of an extensive process of consultation and, as far as possible, consensus between government agencies, NGOs and individual experts in Europe. As such they provide a valuable framework from which more detailed national and regional programmes can be developed and implemented. The completed plans have been examined and approved by the ORNIS Committee.

In some action plans an **impact of powerlines / overhead structures** has been identified, and objectives and recommended conservation actions have been proposed (see: Annex 1).

The Commission also releases **EU management plans for huntable bird species** to be considered in unfavourable conservation status³. The long-term objectives of the plans are to restore the populations of the species to a favourable conservation status in the EU. Therefore, the plans identify short-term objectives to be achieved during the initial 3-years period. These address the most urgent issues to halt the species declines in the EU. It is intended to evaluate and review the plans after three years. This would include an assessment of the results achieved during the first three years. During this process new objectives for the next period should be identified that most effectively will lead to the recovery of the populations and the achievement of the long-term objective to restore the species to a favourable conservation status. All the plans have been approved by the national Delegates of the Member States in the ORNIS Committee and NGOs such as FACE, BirdLife International, OMPO and Wetland International.

One of the plans refers to a threat imposed by power lines. This is the EU Management Plan 2009-2011 for Lapwing (*Vanellus vanellus*) (Annex 2).

¹ All existing action plans are available on:

http://ec.europa.eu/environment/nature/conservation/wildbirds/action_plans/per_species_en.htm

² Directive 79/409/CEE on Wild Birds— often known as the **BIRD Directive** — was adopted in 1979. Its implementation is monitored with the assistance of the **ORNIS Committee**, set up to adapt the directive to technical and scientific progress.

³ All EU management plans are available on:

http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/managt_plans_en.htm



EUROPEAN COMMISSION
DIRECTORATE-GENERAL
ENVIRONMENT
Directorate B - Protecting the Natural Environment
ENV.B.2 – Biodiversity

Brussels,
ENV/B2/MK/fb Ares(2011)

Ms Ivana d'Alessandro
Secretary of the Bern Convention
Biological Diversity Unit
Council of Europe
F-67075 STRASBOURG Cedex

By email: Ivana.dalessandro@coe.int

Subject: Follow-up to Recommendation No. 110 (2004) on minimising adverse effects of above-ground electricity transmission facilities (power lines) on birds

Dear Ms d'Alessandro,

A representative of DG Environment participated in the „**Medium voltage electric grid and bird electrocution in Europe**” conference, which took place in Budapest, Hungary on 13 April 2011. The international conference was organised by MME/BirdLife Hungary, BirdLife Europe, MAVIR (the Hungarian Transmission System Operator Company Ltd.) and the Ministry of Rural Development, Hungary.

The HU Presidency reported the conference outcomes at the Nature Directors meeting on 8-9 June 2011. DG Environment follows the topic and should be able to provide more information on possible developments at the next Standing Committee meeting of the Bern Convention.

Marta Kaczynska
Policy Officer

Annex 1

**Power lines-related elements of the action plans
for the Birds Directive Annex I bird species**

1. Corso-sardinian Goshawk (*Accipiter gentilis arrigonii*)

The Goshawk hunts in forested areas and its manoeuvring skills are excellent. Nevertheless powerlines and any overhead structure may represent a threat.

Importance: low

Objective 2.3 To reduce the impact of powerlines by means of a better planning of the lines and signalling the existing ones.

The planning and building of new powerlines should avoid the main breeding areas and all measures against electrocution and collision should be incorporated.

Priority: Low

Time-scale: Medium

2. The Spanish Imperial Eagle (*Aquila adalberti*)

Nowadays, the main threats for the species, apart from shortage of prey, are of human-origin, mainly electrocution in power lines and poisoning. During dispersal, the young tend to concentrate in a few specific localities with an extraordinary abundance of rabbits, moving between the various sites. These focal areas are very important for the survival of the species and generally coincide with areas that suffer a great degree of human exploitation and where the presence of electrical power lines is high, and that's why young eagles are more likely to die electrocuted than adults. Nests tend to be located in areas where access is difficult: abrupt relief, away from roads, tracks, towns and power lines.

In recent years, most important habitat alterations are caused by infrastructures such as urbanizations, highways, roads, electrical power lines, wind farms, dams, forest tracks, etc.

Eagle recently, causing 50% of deaths according to recent studies (González et al. 2007). Between 1989 and 2004, 115 birds were found electrocuted and nearly 60% of them were bellow breeding age. During the period 1995-2001 there was a drop in mortality by electrocution, clearly associated with the bird safety corrections on power lines carried out by the Autonomous Communities and the Environment Ministry in the framework of several LIFE Projects. However, an increase in the number of cases of electrocution associated with inadequate safety correction measures has also been recorded. For example eight cases of mortality occurred because the insulating tape had worn away (González et al. 2007).

Lines near roads and tracks cause far fewer deaths than those sited away from them, probably because they are avoided. A strong positive correlation was found between the number of rabbits near a power line and the number of eagles electrocuted there. The greatest number of deaths by electrocution are among juveniles because (1) their greater difficulty in perching due to lack of flying experience, (2) lower selectivity in their choice of perch, and (3) more frequent use of populated areas. In Portugal, electrocution might be a risk for the species in several places, although so far it has not been confirmed. Due to the very low abundance of the species in Portugal, the probability of discovering any collision casualties is low.

Importance: critical

National legislation and policies**1. Spain**

- Royal Decree 1432/2008 for the protection of birds from power lines

Andalusia

- Decree 194/90 for the protection of birds from power lines in Andalusia.

Castilla-La Mancha

- Decree 2/1999 for the protection of birds from power lines in Castilla-La Mancha.

Extremadura

- Decree 73/1996 for the protection of birds from power lines in Extremadura.

Madrid

- Decree 40/1998 for the protection of birds from power lines in Madrid.

Objective: Increase the population of the species to at least 1000 mature individuals

2.1. Reduce the number of deaths from electrocution.

2.1.1. Modify technical regulations concerning the installation of high-voltage power lines

2.1.2. Avoided the construction of new power lines in breeding, dispersal and re-colonisation zones

2.1.3. Location, description and upgrading of power lines those are potentially dangerous or have been proved to cause deaths

2.1.4. Apply corrective measures to pylons

2.1.5. Design of harmless electricity pylons

2.1.6. Monitoring of efficiency of modified power lines

3. Greater Spotted Eagle (*Aquila clanga*)

Objective 3.2.1.2. Prevention of disturbance in breeding areas near the nest

Large scale building such as new roads, new powerlines, extension of towns etc. should be prohibited within a 3000m. radius around the nest.

Priority: high

Time-scale: short

4. The Imperial Eagle (*Aquila heliaca*)

Threat and limiting factor among others: collision with, and electrocution by powerlines.

Collision with powerlines is only occasional but electrocution can be a very important factor. In the case of the Spanish Imperial Eagle it proved to be the main source of mortality of young birds during dispersion. With the Imperial Eagle some instances are known from Georgia, but more research is needed to clarify its importance here and elsewhere.

Importance: unknown, potentially high

Conservation priority: reduce mortality from powerlines - high

Objective: 1.2. To promote national legislation which adequately protects the species and its habitat

Where appropriate, a review and update of national laws and regulations relating to nature conservation should be encouraged to ensure that:

[..] (c) Environmental impact assessment is required for afforestation schemes, dam construction, powerlines or any other infrastructure likely to affect the habitat of the Imperial Eagle.

2.2.4. Reduce mortality from electrocution by powerlines

For a species which hunts in open landscapes, electricity poles and pylons are an attractive perch, and mortality due to electrocution probably has a significant effect on Imperial Eagle populations in Europe. It is essential to locate the actual pylons where electrocution occurs most often and then urge the companies owning the lines to undertake appropriate modifications. In the case of lines under construction, it has to be ensured that the routing does not affect areas critical for the Imperial Eagle and that corrective measures against electrocution are incorporated. Much expertise has been developed in the field of designing electricity pylons to make them safe for birds, both in western

Europe and in the United States, and this information must be made available to those organisations and agencies involved in Imperial Eagle conservation.

Priority: high

Time-scale: short/ongoing

Hungary:

2.2.4. Undertake an inventory of critical localities for the electrocution of birds of prey and urge the companies responsible for the powerlines to adopt corrective measures.

5. Lesser Spotted Eagle (*Aquila pomarina*)

Objective 3.2.1. To ensure that the Lesser Spotted Eagle habitat is in good condition to preserve all pairs

3.2.1.1. Prevention of disturbance in breeding areas near the nest.

Large scale building such as new roads, new powerlines, extension of towns etc. should be prohibited within a 3000m. radius around the nest (Scheller et al. 1997).

3.2.1.6. Electrocution This may be important in some areas, and has been identified as a problem in Slovakia. The companies responsible for the powerlines need to adopt corrective measures in areas of high incidence.

Priority: medium

Time-scale: medium

Slovakia:

2.1.6 Identify critical areas for electrocution of birds of prey and urge the companies responsible for the powerlines to adopt corrective measures.

6. Bittern (*Botaurus stellaris*)

Objective 3.2.7. Consider the possible harmful effects of power lines on Bitterns, and if large numbers of casualties are discovered under particular stretches, install effective markers

Power lines have been responsible for the deaths of many large birds of a variety of species, perhaps particularly those dependent on wetlands. It has been suggested that Bitterns may be vulnerable, and individual cases of several Bitterns being found dead under a short length of power line have been recorded.

It seems likely that such incidents are uncommon, and that this type of mortality is not significant. However, if any particular stretches of power line are identified as causing multiple deaths of Bitterns, steps should be taken locally to persuade the relevant agency to put them underground or, at the very least, to provide clear markers on the cables to make them more conspicuous.

Priority : low

Timescale: ongoing

Finland, France, Sweden:

2.7 Consider the possible harmful effects of power lines on Bitterns, and if large numbers of casualties are discovered under particular stretches, install effective markers.

7. The Dupont's Lark (*Chersophilus duponti*)

Threats: Wind farms present mortal risks for larks through collision with the blades as males perform song flights at night during the breeding period. Mortality by collision with power lines has also been recorded. However, these causes of mortality are secondary to habitat loss, as they are the result of the latter. They were therefore evaluated as having a low impact on the population. The conservation strategy for this species should be focused on resolving the primary threats, which are those affecting its habitats.

One of the priority actions:

1.5 Include the species areas of occupancy into no-go areas for wind farms, solar plants, power lines, urban development and transport infrastructure through mapping and planning.

8. The Houbara Bustard in the Canary Islands (*Chlamydotis undulata fuertaventurae*)

Threat: Collisions with powerlines.

Several cases of Houbara deaths due to collisions with powerlines have been recorded. The incidence among steppe-living birds of this type is generally well known and it would not be surprising to find that such collisions are more frequent than is so far apparent.

Importance: unknown, potentially medium

Objectives:

2.1.2. Prevent collisions with powerlines

The first step in eliminating this cause of death is to find out where this type of accident most frequently occurs. To do so it is necessary to patrol the powerlines in Houbara areas searching for dead birds. Once the places are identified, the company owning the line must be invited to take the necessary preventive measures. As a precaution, all new lines in Houbara areas should be laid below ground, or their routing altered with the lines appropriately marked.

Priority: medium

Time-scale: medium

3.1.1. Continue the inventory and mapping of the Houbara's distribution

The objective of this basic study is to define the nesting areas and distribution of the different groups. This information is indispensable for evaluating the possible ecological impact of new roads, powerlines, building projects, etc.

Priority: essential

Time-scale: short

9. The European Roller (*Coracias garrulus garrulus*)

Objective:

2.3. Reduced mortality to a level where it is not a limiting factor of population expansion

2.3.2 Promote bird friendly electric pylon design. Replace, modify or retrofit power lines to prevent Roller electrocution in priority areas.

High: Hungary, Portugal.

Knowledge gap on impact of threat:

Monitoring of electrocution on power lines

10. The Cream-Coloured Courser (*Cursorius cursor*)

Threat: Collision with powerlines.

Collision with powerlines is not well known for steppe birds. Preliminary studies conducted in the eastern island do not show a direct impact on the Cream-coloured Courser. Nevertheless, specific studies could reveal effects on the species. There is data on collision of other steppe species such as Houbara Bustard, Stone Curlew and Black-bellied Sandgrouse (Lorenzo 1993, Lorenzo *et al.* 1998).

Importance: unknown, probably low

Objectives:

2.1.2. Collision with powerlines

There is no preliminary information on collision with powerlines in the species. A study on the impact of powerlines in the best areas for the Cream-coloured Courser should be carried out, and

corrective measure implemented. As a precautionary approach, all new lines in the species areas should be laid below ground, or their routing altered with the lines appropriately marked.

Priority: Low

Time-scale: Medium

3.1.2. Carry out inventory and mapping of the distribution area

The objective of this basic study is to define the nesting areas and the distribution of the different groups. This information is indispensable for evaluating the possible ecological impact of new roads, powerlines, urbanisation, etc.

Priority: High

Time-scale: Short

11. Lanner Falcon (*Falco biarmicus*)

Threat: Disturbance and hazards from building operations, electric power-lines and cliff-side stabilisation – high.

Electrocution from power-lines has been noted as a problem for several raptors species (Penteriani 1996), and is known to have affected the Lanner Falcon in Abruzzo (Italy) and Israel (De Sanctis and Hatzofe pers.comm.). Also, in some areas of Sicily the disappearance of the falcon coincided with the erection of power-lines across valleys. Presently, however, this does not seem to be a widespread threat for the species.

Importance: Medium/locally high

12. Gyr Falcon (*Falco rusticolus*)

Threats:

Collision with cars and fences, and electrocution by power lines

Collision with reindeer fences by hunting Gyr Falcons may pose an increasing threat, because at least in Fennoscandia the total length of fences will increase in the future. According to preliminary data, thousands of Willow Grouse and Ptarmigan die each year in a collision with fences. This may have locally an effect also on the prey populations. Collision with cars is also a threat especially in Iceland, Norway and Sweden with several territories close to highways. Collision with power lines and electrocution are occasional factors having most probably only marginal effect on Gyr Falcons. In the high Arctic there are few power lines, but in the future more lines will possibly be built.

Importance: low

Habitat destruction

In addition to availability of prey, other environmental factors of a habitat must remain in a natural state to hold a viable Gyr Falcon population. Although some falcon populations and pairs have adapted to live close to humans if they can find a safe nest site and productive hunting grounds, some environmental changes caused by human activities have negative effects on the Gyr Falcon. The most serious changes include building of dams and reservoirs, roads, snow mobile and skiing routes, and other tourist infrastructure, as well as cottages, reindeer fences and powerlines (Cade et al. 1998).

Importance: medium

Objective:

2.2.5 Reducing mortality from collision by reindeer fences and electrocution by powerlines

With the help of environmental impact assessment, reindeer fences, powerlines, windmills and other constructions causing a threat to hunting and flying falcons should be built further away from Gyr Falcon nest sites and most productive hunting areas. Reindeer fences should probably be marked more clearly to warn both Gyr Falcons and grouse. Certain types of pylons, for instance, are more dangerous than others. Information is available also on anti-electrocution measures and modifications, some of which are easy to apply and inexpensive.

Priority: low

Time-scale: long

Sweden:

2.2.5 Reduce mortality from collision by reindeer fences and electrocution by powerlines

13. Lammergeier (*Gypaetus barbatus*)

Threat: Overhead cables

Overhead cables are, together with illegal shooting, the most important cause of mortality in the Pyrenees. At least four birds (three adults and one subadult) have died so far on both sides of the range. Also, collision with high tension power lines caused the death of three birds in the French Alps. Medium sized lines with three cables are especially dangerous, since they are difficult to see, especially when they cross high colls and passes. The construction of dams, skiresorts, antennas, etc. usually brings the associated construction of new electric lines.

Importance: high

14. Bonelli's Eagle (*Hieraetus fasciatus*)

Threats: The Bonelli's Eagle *Hieraetus fasciatus* is endangered at a European level having undergone large declines throughout almost all of its European range between 1970 and 1990, reducing the population to 862-1072 breeding pairs (Tucker and Heath 1994). The declines have exceeded 50% over twenty years in some areas and in Spain, which holds up to 65% of the European population, the population appears to have declined by 25% from 1980 to 1990. This downward trend is contrary to that of other big eagles, such as the Spanish Imperial Eagle and Golden Eagle, whose populations are either stable or recovering. It is thought to be due to persecution, electrocution by powerlines, disturbance at nest sites and loss and deterioration of dry grassland and garrigue habitats.

Electrocution

Electrocution at power lines mainly affects immature and juvenile birds. It is the main cause of mortality for these age groups in Spain and France. (Arroyo *et al.*, 1995; Cheylan *et al.*, 1996). This is because such powerlines are more abundant in the areas to which the young birds disperse (which are often more densely populated by humans) and are used as perching sites for hunting. In some regions electrocution and collisions are also the main causes of adult mortality, e.g. in Spain.

Electrocution can change the natural dynamics of the population making critical the already high juvenile mortality - 77% in the first fifteen months of life (Arroyo *et al.*, 1994) or 90% from fledging to recruitment (Real and Mañosa, 1997).

Importance: critical

France: Electrocution by powerlines is the principal cause of juvenile mortality, being responsible for 85% of deaths (Cheylan *et al.*, 1996).

Conservation priorities:

Identification and modification of dangerous powerlines which have caused Bonelli's Eagle deaths – essential.

Protection is required.

Objectives:

3.1.1.2. Enact new legislation and regulations to avoid the installation of powerlines and poles of a design which risks electrocution of birds of prey.

Priority: high

Time-scale: short

3.2.2. Elimination of mortality caused by electrocution

3.2.2.1. Seek removal or modification of electricity pylons that cause the electrocution of birds.

Priority: essential

Time-scale: short

3.2.2.2. Prevent the construction of new power lines in high density breeding and dispersal areas.

Priority: high

Time-scale: short

Recommended conservation actions:

France

2.2.2 Remove or modify those power-lines that are dangerous to the eagles.

Portugal

2.2.1 Survey power-lines within breeding and dispersal areas to assess electrocution risk. Replace or modify dangerous poles.

Spain

2.2 Develop and implement nationally enforceable standard on new powerlines to avoid designs of poles that are dangerous for large birds (eagles, vultures, storks, etc.). In important breeding and dispersal areas modify or remove existing dangerous powerpoles and powerlines and prevent the construction of new ones.

15. The Egyptian Vulture (*Neophron percnopterus*)

Threats: According to scientific evidence and experience with population management and population viability studies, the high mortality of adult individuals caused by poisoning, collisions with wind farms and power lines and electrocution and the loss of suitable habitats and food (i.e. reduced food availability and human disturbance) are considered the main threats leading to population decline. The drivers of these threats are changes in agriculture and rural economies leading to decline of grazing livestock farming, intensification of meat and milk husbandry and reduced animal mortality because of improved veterinary practices. The increasing development of renewable energy production and energy transporting infrastructure (wind farms, hydropower and power lines) plays an increasing negative role in the most important areas for the species in Europe by directly killing individuals (e.g. Southern Spain) or displacing breeding pairs from their habitat.

The recent expansion of wind farms and of electric grid has increased the number of cases of death by collision with turbines and power lines. As a result of high adult and young mortality and slow reproductive rates the population decrease across the entire range has been large and so far irreversible.

Objectives:

1.5 Reduce risk of mortality from electric lines

1.5.1. Identify dangerous power lines - Applicable to: GR, FR (to continue the actions in progress), PT, SP (Canary Island), TR

1.5.2. Improve design of lines related to spacing between cables, structures and visibility - Applicable to: GR, FR (to continue the actions in progress), PT, SP (Canary Island), TR

1.5.3. Ensure maps of breeding locations are available to electric companies and planners/EIA experts - Applicable to: GR, PT, SP (Canary Island), TR

1.5.4. Retrofit poles with dangerous design in sensitive areas - Applicable to: BG, FR (To continue the actions in progress), GR, IT, PT, SP (Canary Island), TR

16. The Great Bustard (*Otis tarda*)

Threats: Collision with powerlines - medium/high in some areas.

Powerlines

Great Bustards are remarkably terrestrial, and are reluctant to fly in poor weather. Their poor manoeuvrability in flight renders them unable to evade poorly marked powerlines. Collision with overhead cables is a significant cause of death in some countries (Hungary, Portugal, Russia, Slovakia and Spain). Small populations can be totally destroyed by a single powerline. In some areas of Spain this is the prime cause of mortality in adult birds (Alonso *et al.* 1994).

Importance: medium/high in some areas

Habitat loss

Ploughing of grasslands, afforestation, irrigation schemes, roads, highways, powerlines, fences, ditches, etc., affect Great Bustards in parts of Austria, Bulgaria, Germany,

Hungary, Portugal, Russia and Spain.

Importance: critical

Human disturbance

Disturbance causes stress, desertion of clutches, escape flights during unfavourable weather and the associated risk of injuries (e.g. collision with powerlines), and, in the case of young birds, a reduction in time spent feeding. Disturbance at the display sites disrupts social behaviour and usually alters or aborts copulation. The problem is particularly relevant in areas of high human population, such as parts of Austria, Germany, Hungary, Slovakia and Spain.

Importance: medium

Conservation priorities:

Prevent collisions with powerlines - high

2.2.2. Prevent alterations that fragment or isolate Great Bustard habitat

The construction of new roads or highways, powerlines and railways, the planting of shelterbelts, and irrigation and afforestation schemes should be prevented in Great Bustard areas. All these and other infrastructures should be subject to environmental impact assessments which consider viable alternatives, and take into account the special sensitivity of the Great Bustard to disturbance and habitat encroachment. Fences should either be avoided or constructed in a way that permits the free movement of chicks.

Priority: medium/high

Time-scale: short

2.2.3. Adopt corrective measures for powerlines Collisions with overhead cables can be avoided or at least greatly reduced by appropriate marking. Existing lines which cross Great Bustard areas should be buried or marked prominently. New lines should not be built across Great Bustard areas.

Priority: high

Time-scale: short

Bulgaria

1.1.4. Promote the preparation of an environmental impact assessment prior to all largescale projects (highways, powerlines, railways, irrigation or afforestation schemes).

Portugal

2.2.4. Promote the installation of markers on overhead powerlines crossing key Great Bustard areas.

Slovakia

2.2.3. Promote installation of ball markers on the powerline near Kolarovo.

17. The Dalmatian Pelican (*Pelecanus crispus*)

Threats: Powerlines.

Crivelli *et al.* (1988) identified powerlines as a significant cause of mortality in one wintering area, mainly through collision, and the problem was also encountered subsequently at a breeding site (Crivelli *et al.* 1991b) and in many other areas. Removal of powerlines, the addition of plastic flags as markers, and the use of thick cables have been tested with successful results (Crivelli *et al.* 1991a, G. Catsadorakis and A. Crivelli verbally 1994, H. Jerrentrup verbally 1994).

Importance: high

Conservation priorities:

Burial of powerlines or replacement with thick cable - high

Objectives:

2.2.3. Powerlines

Dismantle or bury powerlines identified as dangerous for pelicans. If this is not feasible, powerlines should be made visible to the birds in order to avoid collisions.

Priority: high

Time-scale: short

Greece:

2.2.3. Promote burial of all powerlines located on the isthmus between the two lakes Prespa or at least install a thick cable along the full length of the powerlines.

2.2.4. Promote installation of thick cable on several powerlines which are dangerous for Dalmatian Pelicans in other areas (Amvrakikos, Kerkini, etc.).

18. Little Bustard (*Tetrax tetrax*)

Threats: Built development.

In small populations, the increase of infrastructures such as roads, dams, residential areas, power lines, etc., can negatively affect the species through habitat loss or fragmentation e.g. in Apulia, Italy.

Importance: low

Objectives:

3.2.2.1. To prevent developments that could change or fragment the habitat, such as the construction of highways, roads, railways and powerlines, or irrigation, afforestation (see also 1.2) and landholding concentration schemes.

Priority: high

Timescale: reactive

Conservation actions:

France:

2.2.1. Prevent the extension of peach groves and industrial projects in La Crau. Carry out environmental impact assessments wherever Little Bustard habitat could be threatened by new motorways or powerlines.

19. Red kite (*Milvus Milvus*)

Threats: The primary reason for population decline is the increased mortality of adult and juvenile birds caused by poisoning, and to a lesser extent through habitat changes, collision with structures and electrocution. The recent expansion of wind farms and electric grid pylons has increased the number of cases of death by collision with turbines and electrocution on power lines, but the data is still insufficient to estimate the relative importance of these threats accurately.

In common with other large perching birds, notably other raptors, red kites become victims of electrocution through contact with live power cables (four cases reported in France between 2002 and 2007 (LPO, 2009) and, in Germany overhead railway lines (Mammen et al., 2006). Technical solutions are in place in some parts of Europe to provide safe perches on poles and pylons (e.g. Czech Republic, Portugal and others) but these tend to be individual initiatives rather than a coordinated programme (exceptions in Germany, Hungary and others).

Impact: low

1.3 Actions addressing electrocution and collision:

1.3.1 Promote and design technical solutions for mid-voltage pylons (examples available in Slovakia).

1.3.2 Map risk areas (based on monitoring of mortality cases; priority to areas with limited alternative perches)

1.3.3 Promote isolation of existing powerlines

1.3.4 Harmonize national legislation and technical standards to make all new powerlines bird friendly

In place in: CZ, SK, ES, PT, HU; research on this issue may be needed in UK.

20. Red-footed Falcon (*Falco vespertinus*)

Threat: Electrocution.

Certain medium voltage electric pylons currently used in many countries may cause electrocutions to birds larger than starlings (*Sturnus vulgaris*). Diurnal raptors of steppe-type habitats where trees are scarce are especially exposed to this threat since pylons provide good perching and resting points. In the case of the red-footed falcon, the probability of electrocution is high, where such power-lines run close to colonies, since both adults and freshly fledged juveniles favour these tall objects for perching. Medium voltage power-lines in the vicinity of autumn roost sites are also dangerous, as large concentrations of birds use cables and pylons before roosting. However, precise data to quantify this threat are missing.

Objective:

3. Direct mortality reduced to levels not affecting the population trend

3.6 Take measures to reduce mortality on mid-voltage electric pylons:

- Insulate pylons in core areas (e.g. breeding and roosting sites, migratory hot-spots);
- Promote bird friendly electric pylon design in grid expansion projects.

Applicable to: all range states

Annex 2**Power lines related elements of the EU management plans
for the Birds Directive huntable species (2009-2011)****21. Lapwing (*Vanellus vanellus*)**

Threat:

Power lines may also pose a threat to Lapwings. In the study of Bak & Ettrup (1982), 1.7% of the ringed Lapwings recovered (with known cause of death) were killed by collision with power lines. Furthermore, wind farms have been shown to reduce habitat available for staging and wintering Lapwings in several case studies (Hötter *et al.* 2004).

Importance:

The importance of infrastructure development as a threat is set at Low.

FRANCE / FRANCE

NOTE AU SECRETARIAT DE LA CONVENTION DE BERNE SUR LE SUIVI DE LA RECOMMANDATION N°110 (2004) VISANT A MINIMISER LES EFFETS NEFASTES DES LIGNES ELECTRIQUES SUR LES OISEAUX Juillet 2010

Concernant l'avifaune le problème majeur est l'électrocution sur les lignes Moyenne Tension (et parfois Haute Tension) et dans certains cas des problèmes de collisions avec les grands « voiliers » (rapaces, cigognes, grues, hérons, etc.), mais aussi les outardes sur tout type de lignes, mais plus spécialement la haute tension et la très haute tension (câbles de garde peu visibles, etc.).

1. Le dispositif général au niveau national :

Au niveau régional et, au niveau central, des "Accords réseaux électriques et environnement" entre EDF (Electricité de France) et ses filiales et l'Etat (accord pour 1997-2000 puis pour 2001-2003) puis de contrats de service public, en 2004-2007.

Ces contrats de service public triennaux entre l'Etat au niveau central et chacun des sociétés publiques de transport d'électricité (ERDF sur réseau moyenne tension et RTE sur réseau haute et très haute tension) intègrent des objectifs généraux de prise en compte des questions environnementales (par exemple des engagements à enterrer les lignes nouvelles) et de résorption de sites problématiques pour l'électrocution et/ou la collision de l'avifaune

Ces accords d'objectifs globaux, ont ensuite été relayés localement par des conventions associations/EDF et ses filiales, avec souvent une faible précision dans leurs objectifs et délais d'application et également des retards fréquents d'application de la part d'EDF et ses filiales.

En 2004 EDF et RTE (puis ERDF) ont mis en place avec la LPO (Ligue pour la protection des oiseaux) et FNE (France nature environnement) un "Comité national avifaune" (CNA), deux associations impliquées à trouver des solutions au problème. Ce Comité vise à travailler en amont sur la stratégie d'ensemble et des guides techniques et faciliter l'application des accords locaux (catalogue des poteaux/pylones/câbles dangereux et système de neutralisation en cours d'élaboration par ex., formations en commun, publication lettre d'information).

La déclinaison pratique des opérations de neutralisation d'armements dangereux est renvoyée à des conventions locales passées entre associations et ERDF principalement (sans implication des DREAL). Pour RTE, il existe par contre un exemple de convention tripartite RTE / LPO / DIREN Aquitaine sur le Plan National d'Action Gypaète barbu, qui a nécessité 7 ans de négociation.

A l'occasion du dernier colloque Comité national avifaune (CNA), en octobre 2009 à Paris, les associations concernées ont :

- salué l'évolution des relations avec ERDF/RTE (CNA) à travers de nombreux exemples de coopération avec le secteur associatif,
- pointé l'absence d'impact significatif des mesures de neutralisation appliquées jusque là, après plus de 20 ans d'alerte sur ces problèmes (moyen financiers très insuffisants, retards systématiques dans l'application des conventions, absence de retour organisé des résultats des opérations). Il a été souligné la nécessité d'un changement d'envergure des actions. A titre d'exemple, ERDF (contrairement à RTE) n'a pas de fichier SIG permettant d'identifier les caractéristiques des poteaux existant sur ses lignes (et donc la localisation des poteaux dangereux), seuls les tracés de lignes sont numérisés. ERDF ne tient pas non plus une comptabilité ni une localisation précise de ce qui est neutralisé ni n'a mis en place de protocole et instruction claire sur la remontée d'information d'oiseaux trouvés morts par ces agents ;

et ERDF (directoire) s'est :

- engagé à neutraliser 10 000 poteaux dans les 3 ans du nouveau contrat de Service Public (qui n'était pas encore signé en octobre 2009), soit 3 fois plus que pour la période précédente,
- dit prêt à mettre une priorité sur une espèce au niveau national, l'Aigle de Bonelli, à condition que ce soit une demande unanime formelle des représentants des associations au CNA,
- engagé à participer avec RTE au financement d'un poste associatif (demande d'A. Beaugrain-Dubourg - LPO) sur des objectifs précis de résultats à atteindre.

Il reste cependant difficile d'établir un bilan de ce qui a été fait concrètement en matière de neutralisation par les sociétés d'électricité nationale (sans parler des régies locales de distribution), faute d'un véritable dispositif de suivi informatisé de la part des sociétés nationales d'électricité.

Néanmoins, des activités très concrètes ont été réalisées dans le cadre du Plan national d'action « Aigle de Bonelli ». Un projet est en cours en Languedoc-Roussillon avec la DREAL et RTE.

2. Une action à impulser dans le cadre du Plan National d'Action Aigle de Bonelli en Languedoc Roussillon (LR) :

Cette espèce très rare est présente dans 3 régions (Languedoc Roussillon, Provence-Alpes-Côte d'Azur et 1 département de Rhône-Alpes : l'Ardèche). Plus de 50 % de mortalité de ces oiseaux constatée l'est par électrocution et quelques cas de collision avec les lignes.

Résoudre ce problème à l'échelle de l'aire nationale de présence de l'espèce est considéré comme l'un des principaux facteurs clés pouvant permettre un redémarrage de la dynamique de cette espèce toujours très fragile et celui sur lequel il est le plus facile d'agir en pratique (contrairement au braconnage, par définition difficile à cerner et juguler). Les actions menées en Camargue-Crau (principale zone de concentration d'oiseaux non territoriaux en France) dans les années 90 semblent avoir eu un effet positif : le CNRS détecte une différence significative de survie adulte et immature après l'équipement de cette zone. Il y a encore cependant beaucoup de cas d'électrocution (3 en 2008-2009 en Hérault et au total 24 aigles de Bonelli décomptés en France depuis début 1990 malgré la quasi absence de suivi régulier des lignes, c'est donc un strict minimum).

En 2010, un chiffrage global minimal (sans tenir compte des cartographies non encore réalisées et des territoires non gérés par ERDF) et plusieurs priorités y ont été définies pour l'Aigle de Bonelli, en ce qui concerne les lignes moyenne tension (en gestion ERDF) :

- **Total des poteaux très dangereux identifiés en zone de référence Bonelli : 5 100** environ (dont ~ 1 000 en LR)
- **Total des poteaux très dangereux neutralisés en zone de référence Bonelli : 1 700** environ (dont ~ 268 en LR)
- **Total des poteaux très dangereux identifiés et restant à neutraliser en zone de référence Bonelli : 3 350** environ (dont ~ 705 en LR)

Des priorités ont été définies par les acteurs du Plan national d'action :

- **1) neutraliser les domaines vitaux occupés et zones de rassemblements d'oiseaux non territoriaux** (en particulier une zone attractive pour l'Aigle de Bonelli, très quadrillée de lignes « accidentogènes » a été identifiée vers Bessan (Est Béziers) avec 4 oiseaux morts en 2 ans : 1 immature électrocuté fin 2008, 2 en 2009 (dont 1 cadavre ancien découvert par l'ONCFS en mars 2010 qui remonterait à août de l'année précédente) et 1 ind. récupéré encore vivant en mars 2010 (jeune femelle baguée de 1, 9 kg) découvert à proximité d'une ligne haute tension, mais auto-amputé de toute la moitié de l'aile gauche (perte de toute la "main" avec l'ensemble des rémiges primaires) et des dégâts irréversibles de gangrène à la patte droite symptôme typique d'une électrocution... L'oiseau a été euthanasié (cf. photo).. Le coeur de ce secteur sensible a été cartographié plus précisément en mars 2010.
- **2) neutraliser les domaines vitaux vacants les plus favorables**
- **3) neutraliser les autres sites vacants**

Au total avec la première priorité pour la région LR (~ 1 000 poteaux à neutraliser (~ 10 % de l'ensemble national prévu), en les attribuant spécifiquement aux sites à Aigle de Bonelli. Cette action serait déjà une avancée significative, atteignable en 3 ans.

Pour ce qui est des lignes haute tension (RTE), ce travail de chiffrage n'a pas encore été réalisé mais les deux nouveaux oiseaux trouvés électrocutés en 2010 relèvent de ces lignes selon toute vraisemblance et il est certain que le risque d'électrocution y existe (d'autres rapaces ayant déjà été affectés sur certains pylones). Les collisions sont peu documentées mais les cas en augmentation. Une évaluation complémentaire doit donc être faite pour les lignes HT des secteurs à Bonelli.

La mise en place de ces actions répond à une nécessité (espèce protégée et responsabilité finale de l'Etat pour sa conservation sur les sites Natura 2000). En outre, la légitimité de ces conventions s'appuie sur :

- le plan national d'action Aigle de Bonelli pour lequel la DREAL LR est le pilote national
- 2010 année internationale de la biodiversité pouvant donner à ces conventions une portée symbolique
- la mise en place d'un axe concret de la trame verte et bleue (Dans le cadre du Grenelle de l'environnement) par résorption de ces points noirs qui sont des obstacles à la continuité écologique pour les habitats d'espèces d'oiseaux.

Ce conventionnement pourrait être appuyée par une mobilisation du FEDER biodiversité (c'est le cas en Espagne) pour réaliser des travaux d'équipement des lignes, **à condition que ERDF et RTE arrêtent une stratégie et un plan d'action précis et partagé.**

Par ailleurs, il sera nécessaire de traiter l'équipement des lignes situées hors distribution ERDF : la Compagnie d'Electricité de Saint-Martin de Londres (CESML) en particulier couvre un vaste secteur à enjeu Bonelli dans l'Hérault : elle n'a pas de programme spécifique d'intervention pour l'avifaune.

**CRITERE DE SELECTION ET LOCALISATION DES ENJEUX NATURALISTES
POUR LE RESEAU HTA EN FRANCE**

Par Benjamin Kabouche et Yvan Tariel, LPO France, mai 2008

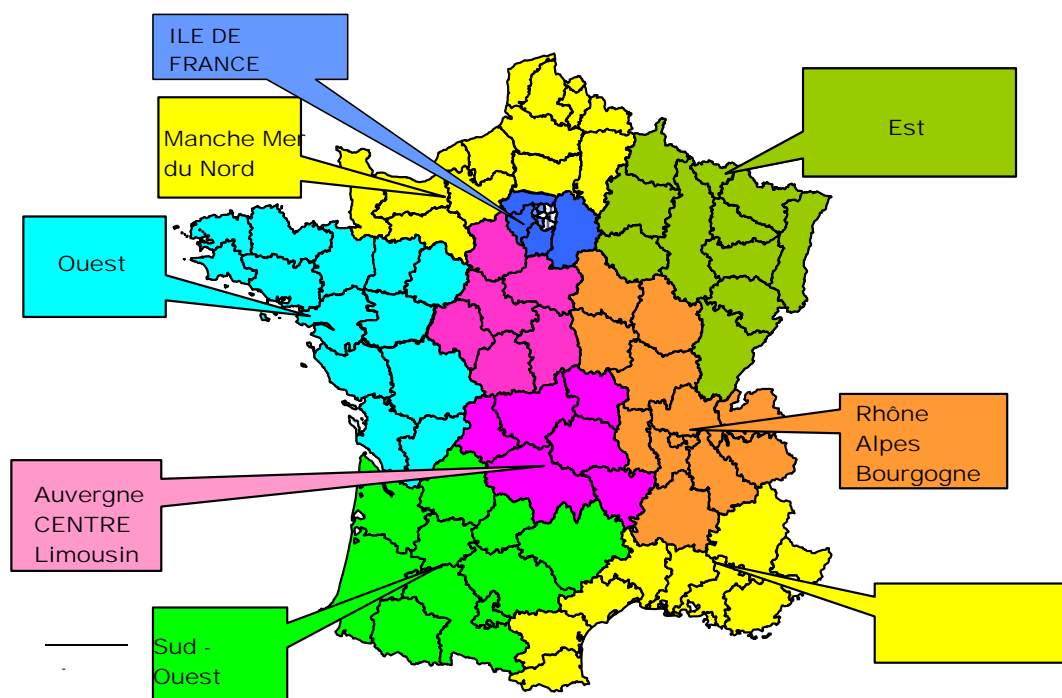
1. Priorité par région

A l'échelle opérationnelle d'EDF, les priorités en termes d'enjeux pour les espèces les plus sensibles aux réseaux électriques et les plus menacées sont les suivantes :

Voici quelques ajouts. Je suis allé jusqu'aux espaces rares en CMAP3

	Région EDF	Espèces prioritaires
1	Méditerranée et Corse	Aigle de Bonelli, Gypaète Barbu, Vautour moine, Vautour percnoptère, Circaète Jean-le-Blanc, Outardes, cigognes, Aigle Royal, Flamant rose, Butor étoilé, Héron pourpré, Milan Royal, Balbuzard pêcheur, faucon crécerellette, grand-duc, aigle botté
2	Rhone-Alpes Bourgogne	Aigle de Bonelli, Gypaète Barbu, Vautour moine, Vautour percnoptère, Circaète Jean-le-Blanc, cigognes, Aigle Royal, Milan Royal, grand-duc, aigle botté
3	Pyrénées	Gypaète Barbu, Vautour moine, Vautour percnoptère, Circaète Jean-le-Blanc, cigognes, Aigle Royal, Héron pourpré, Milan Royal, Grand-duc, Elanion blanc, aigle botté
4	Auvergne centre Limousin – Région EST	Circaète Jean-le-Blanc, Outardes, cigognes, Aigle Royal, Milan Royal, Balbuzard pêcheur, grand-duc, aigle botté, Grue cendrée
5	Ouest et Manche mer du nord	Outardes, cigognes, Butor étoilé, Héron pourpré,
6	Ile de France	Balbuzard pêcheur

Tableau n°1 : Hiérarchisation des régions avec des enjeux avifaune pour EDF



Carte 1. Les centres EDF

2. Natura 2000, les lignes électriques aériennes et l'avifaune

Ce sont les articles L 414-1 à L 414-7 du Code de l'Environnement qui définissent la valeur juridique d'un site Natura 2000 :

« Les sites Natura 2000 font l'objet de mesures destinées à conserver ou à rétablir dans un état favorable à leur maintien à long terme les habitats naturels et les populations des espèces de faune et de flore sauvages qui ont justifié leur délimitation. Les sites Natura 2000 font également l'objet de mesures de prévention appropriées pour éviter la détérioration de ces mêmes habitats naturels et les perturbations de nature à affecter de façon significative ces mêmes espèces.(...) »

Les mesures sont prises dans le cadre des contrats ou des chartes (...) ou en application des dispositions législatives ou réglementaires, notamment de celles relatives aux parcs nationaux, aux réserves naturelles, aux biotopes ou aux sites classés. »

Deux cas se présentent ensuite selon :

- si les lignes électriques aériennes existent, l'unité EDF peut faire partie du comité de pilotage et donc participer à l'élaboration du Documents d'Objectifs et bénéficier éventuellement d'aides financières européennes pour la neutralisation ou la signalisation de tronçons ou points dangereux pour l'avifaune ;
- si des lignes électriques sont en projet, il y a obligation de mener une étude d'évaluation des incidences de ce futur réseau sur le statut de conservation du site Natura 2000.

3. La richesse spécifique du secteur environnant

Les priorités d'actions sont fonctions du contexte local. Un tronçon très localisé de ligne peut être fortement « accidentogène ». Il est fortement recommandé de n'engager des actions de neutralisation que dans les zones préalablement étudiées. Une cotation peut s'effectuer **préalablement à l'analyse de terrain**, par une visualisation cartographique de la ligne électrique étudiée, de la délimitation des espaces protégés et/ou des types d'utilisation des territoires (forêts, espaces agricoles, zone humide...) :

Type de secteur environnant		Cotation
Tout secteur inclus dans une zone au patrimoine naturel exceptionnel : un site désigné ou proposé comme site Natura 2000 (ZPS, ZICO, pSIC, SIC, ZSC), un Parc National, un Parc Naturel Régional, une Réserve Naturelle ou un site du Conservatoire du Littoral		3
Suite à un inventaire ornithologique, tous les secteurs dont la richesse et/ou la diversité spécifique sont jugées fortes		
Secteur comprenant une zone humide significative pour l’avifaune (marais, tourbière, étang, lac)		
Milieu rupestre (falaise, roches calcaires)	NB : Ces milieux côtés 2 doivent être exclus de tout critère justifiant la cotation 3	2
Milieu ouvert et sec (pelouse et lande sèches)		
Milieu agricole extensif (friche agricole, pâturage)		
Milieu forestier		
Cas particuliers : décharges, piscicultures, avicultures		
Milieu agricole intensif		1
Milieus périurbains et urbains non attractifs		

Tableau n°2 : Cotation de la richesse ornithologique spécifique du site

4. L'analyse relative du statut de conservation des espèces

Dans le cadre d'un inventaire des enjeux ornithologiques, une analyse du statut de conservation local, régional, national, européen et mondial de chaque espèce doit être menée. Il faut considérer :

Importance des populations au niveau local

Les effectifs locaux de chaque espèce seront mis en rapport avec les effectifs régionaux, nationaux et européens, afin de définir sa représentativité dans la zone d'étude.

Statuts de conservation mondial et européen de l'espèce

Pour avoir une vision plus large sur l'importance de la présence d'une espèce sur la zone d'étude, des experts ont établi des catégories hiérarchisant la vulnérabilité des espèces. Ce sont les catégories exposées dans l'ouvrage « Oiseaux menacés et à surveiller en France » [1]. Les cinq catégories **CMAP** regroupent l'ensemble des espèces dont la **Conservation Mérite une Attention Particulière**. Les espèces sont réparties dans les catégories CMAP 1 à CMAP 5 suivant leurs niveaux de vulnérabilité français et européens, et l'importance internationale des effectifs présents en France.

Les catégories **SPEC (Species of European Conservation Concern)** ont été établies par TUCKER & HEATH en 1994 [2], ces catégories regroupent les espèces dont la conservation mérite une attention particulière en Europe. Chaque catégorie dépend de la proportion de l'effectif mondial présent en Europe.

Les catégories CMAP	Les catégories SPEC
CMAP 1 : Espèce menacée à l'échelon mondial.	SPEC 1 : Espèce menacée à l'échelle planétaire.
CMAP 2 : Espèce très menacée en France et en Europe.	SPEC 2 : Espèce à statut européen défavorable dont la majorité de la population mondiale se trouve en Europe.
CMAP 3 : Espèce dont le niveau de vulnérabilité est moyen en France et en Europe, ou espèce moins menacée mais dont la France abrite une proportion importante des effectifs européens.	SPEC 3 : Espèce à statut européen défavorable dont la majorité de la population mondiale se trouve hors d'Europe.
CMAP 4 : Espèce encore abondante mais en déclin en France et en Europe.	SPEC 4 : Espèce à statut européen non défavorable dont la majorité de la population mondiale se trouve en Europe.
CMAP 5 : Espèce dont le statut français n'est pas défavorable contrairement au statut européen.	Non-SPEC : Espèce à statut européen non défavorable dont la majorité de la population mondiale se trouve hors Europe.
Non-CMAP : Espèce dont le statut n'est jugé défavorable ou fragile ni en France ni en Europe et dont la proportion de l'effectif européen en France est inférieure à 25%.	

Tableau n°3 : Les catégories CMAP et SPEC des espèces d'oiseaux

5. Les statuts réglementaires des oiseaux

Les tableaux ci-dessous indiquent les différentes échelles de statuts réglementaires, selon l'espèce, qui peuvent aider au classement des actions prioritaires à mener sur les lignes électriques.

Espèce protégée	L'espèce est protégée en France, au titre de la loi du 10 juillet 1976 sur la protection de la nature et de ses arrêtés d'application (art. L-221 et suivant du code rural).
Espèce chassable	Une espèce chassable est une espèce dont la chasse est autorisée en France (arrêté ministériel du 26 juin 1987 modifié). La période de chasse peut être variable suivant les espèces et des plans de chasse peuvent être mis en place.

Tableau n°4 : Le statut réglementaire national des espèces d'oiseaux

La Directive européenne 79/409/CEE (arrêté 16 novembre 2001 paru au JORF du 29/01/02), dite Directive « oiseaux » s'applique à tous les Etats membres de l'Union Européenne depuis le 6 avril 1981.	
Annexe I	Espèces devant faire l'objet de mesures de conservation spéciales en particulier en ce qui concerne leur habitat, afin d'assurer leur survie et leur reproduction dans les aires de distribution. Chaque état membre doit classer en ZPS les sites les plus appropriés en nombre et en superficie pour la conservation de ces espèces.
Annexe II	Espèces pouvant être chassées.
Annexe III	Espèces pouvant être régulées selon des modalités strictes.

Tableau n°5 : La Directive européenne 79/409/CEE

La Convention de Berne du 19 septembre 1979 est relative à la conservation de la vie sauvage et du milieu naturel en Europe. (Publié au JORF du 30/10/90)	
Annexe II	Espèces de faune strictement protégées.
Annexe III	Espèces de faune dont l'exploitation, sous quelque forme que ce soit, est réglementée.

Tableau n°6 : La Convention de Berne

La Convention de Bonn du 23 juin 1979 est relative à la conservation des espèces migratrices. (Publié au JORF du 28/08/90 et du 20/08/96)	
Annexe I	Elle regroupe les espèces migratrices menacées, en danger d'extinction, ou nécessitant une protection immédiate.
Annexe II	Elle rassemble les espèces migratrices se trouvant dans un état de conservation défavorable et nécessitant l'adoption de mesures de conservation et de gestion appropriées.

Tableau n°4 : La Convention de Bonn

6. Etat des lieux des différents sites de migration français et leur statut légal (Zico, ZPS, acquisition de cols)

Sur le tableau n°5, 37 sites recensés, 16 sont classés en ZICO (Défilé de l'Ecluse, Escrinet, La Clape, Leucate, Prat-de-Bouc, Saint-Seurin d'Uzet, Barcagio, Pintegarde, Ouessant, Pointe de Grave, Carolles, Cap Gris-Nez, Lindux, Lizarrieta, Organbidexka, Pointe de l'Aiguillon) et 9 en ZPS. Il faut ajouter le petit site du Cap de la Hève (Znieff type I et II).

	NOM DU SITE	COMMUNE	DEPART EMENT	PERIODE	GROUPES D'ESPECES	DUREE DU SUIVI	ORGANI SATION	ZIC O	ZPS	NON DU CONTACT
1	DEFILE DE L'ECLUSE	CHEVRIER	Ain / Haute-Savoie	Migration postnuptiale	Rapaces & passereaux	suivi complet 15 ans environ	Nos Oiseaux et LPO Haute-Savoie	Oui	Oui	Pierre CHARVOZ & Jean-Pierre MATERAC
2	EZE	LA TURBIE	Alpes Maritimes	Migration prénuptiale	Rapaces & passereaux	2 à 3 ans	LPO PACA	Non	Non	Benjamin Kabouche
3	SAINT JEANNET	SAINT JEANNET	Alpes Maritimes	Migration prénuptiale	Rapaces & passereaux	?		Non	Non	Michel Belaud
4	ESCRINET		Ardeche	Migration prénuptiale	Rapaces, colombidés, passereaux	10 ans	CORA Ardeche	Oui	?	R. MATHIEU
5	LA CLAPE		Aude	Migration prénuptiale	toutes espèces	?	LPO Aude	Oui		LPO Aude
6	LEUCATE	Leucate	Aude	Migration prénuptiale	toutes espèces	?	LPO Aude	Oui		LPO Aude
7	PRAT DE BOUC		Cantal	Migration postnuptiale	toutes espèces	10-15 ans (arrêt)	LPO Auvergne	Oui	Oui	LPO Auvergne
8	SAINT SEURIN D'UZET/ MORTAGNE SUR GIRONDE	Chenac et Mortagne	Charente Maritime	Migration postnuptiale	toutes espèces	variable plus de 10 ans	CRBPO et LPO	Oui	ZPS	B. BAYOU
9	LA COURTINE	La Courtine	Creuse	Migration postnuptiale	toutes espèces		SEPOL	Non	Non	SEPOL
10	SAINT VAURY	St Vaur	Creuse	Migration postnuptiale	toutes espèces	2 à 3 ans	SEPOL	Non	?	P. BOULESTEIX
11	BARCAGIO	ERSA , ROGLIANO	Haute Corse	Migration prénuptiale	toutes espèces	depuis 1979	G.O Corse & CRBPO-Dél.Rég. de Corse	Oui	Oui	G. FAGGIO
12	SALVI	Lavatoggio	Haute Corse	Migration prénuptiale	toutes espèces	à partir de 2003	G.O Corse	Non	Non	G. FAGGIO
13	LE COLOMBIER	Montjoyer	Drôme	Migration prénuptiale	Colombidés & passereaux	10 ans	G. OLIOSO	Non	Non	G. OLIOSO
14	PIERRE - AIGUILLE	Pierre Aiguille	Drôme	Migration prénuptiale	Rapaces & passereaux	7 ans	CORA Drôme	Non	Non	S. BLACHE

15	PIERRE SANGLANTE	La Roche Sur Grane	Drôme	Migration prénuptiale	Rapaces & passereaux	1 an	CORA Drôme	Non	Non	S. BLACHE
16	PINTEGARDE	Livron sur Drôme	Drôme	Migration prénuptiale	Rapaces & passereaux	3 ans	CORA Drôme	Oui	Oui	S. BLACHE
17	OUESSANT	Lampaul	Finistère	Migration postnuptiale	toutes espèces	plusieurs décennies	PNR	Oui	ZPS	C. KERBIRIOU
18	POINTE DE GRAVE	Le Verdon sur Mer	Gironde	Migration prénuptiale	toutes espèces	15 ans	LPO Aquitaine	Oui	?	O. LE GALL
19	CAP FERRET	CAP FERRET	Gironde	Migration postnuptiale	toutes espèces	?	LPO Aquitaine	?	?	O. LE GALL
20	LITTORAL D'AQUITAINE	de la Pte de Grave à Biscarosse	Gironde	Migration postnuptiale	toutes espèces	LPO Aquitaine	Non ?	?	LPO Aquitaine	
21	LE FAU	Monestier de Clermont	Isère	Migration postnuptiale	Rapaces et passereaux	quelques années	CORA Isère	Non	Non	G.GOUJON
22	LA CROIX HAUTE	Lalley	Isère	Migration postnuptiale	Rapaces et passereaux			Non	Non	CORA Isère
23	LITTORAL D'AQUITAINE	de Biscarosse à Boucau	Landes	Migration postnuptiale	toutes espèces	?	LPO Aquitaine	Non	Non	LPO Aquitaine
24	BARACUCHET		Loire	Migration postnuptiale	toutes espèces	20 ans	LPO Loire	Non	?	P. BALLUET
25	CAROLLE SUR MER	Carolle	Manche	Migration postnuptiale	toutes espèces	ca 10 ans	GONm	Oui	Oui	G.DEBOUT
26	CAP GRIS-NEZ		Pas de Calais	Migrations pré et postnuptiales	toutes espèces	40 ans	GON	Oui	Oui	GON
27	LA SERRE		Puy de Dôme	Migration postnuptiale	toutes espèces	? (arrêt)	LPO Auvergne	?	?	LPO Auvergne
28	LITTORAL D'AQUITAINE & BASQUE	de Boucau à Hendaye	Pyrénées Atlantiques	Migration postnuptiale	toutes espèces	?	LPO Aquitaine	?	?	LPO Aquitaine
29	LINDUX		Pyrénées Atlantiques	Migration postnuptiale	toutes espèces	25 ans	OCL	Oui	Oui ?	S. BARANDE/ J.P. URCUN
30	LIZARRIETA		Pyrénées Atlantiques	Migration postnuptiale	toutes espèces	15-20 ans	OCL	Oui	Oui ?	S. BARANDE/ J.P. URCUN
31	ORGAMBIDEX KA		Pyrénées Atlantiques	Migration postnuptiale	toutes espèces	25 ans	OCL	Oui	Oui ?	S. BARANDE/ J.P. URCUN
32	LE SOULOR		Hautes Pyrénées	Migration postnuptiale	toutes espèces	?	OCL	Non ?	Non	J.P. URCUN
33	EYNE		Pyrénées orientales	Migration postnuptiale	toutes espèces	?	?	?	?	J. GONIN
34	POINTE DE L'AIGUILLON	L'Aiguillon-sur-Mer	Vendée	Migration postnuptiale	toutes espèces	ca 10 ans	LPO Vendée	Oui	Oui	LPO Vendée
35	BERARD		Savoie	Migration postnuptiale	Rapaces & Passereaux	2 ans	CRBPO	Non	Non	JF DEJONGHE
36	LA GOLEZE	Samoëns	Haute-Savoie	Migration postnuptiale	Rapaces & Passereaux	10-15 ans	CRBPO	Non	Non	CRBPO
37	LE HUCEL	THOLLON LES MEMISES	Haute-Savoie	Migration prénuptiale	Rapaces & Passereaux	9 ans	LPO Haute-Savoie	Non	Non	Hugues DUPUICH

Tableau n°5 : 37 sites de migration en France recensés

7. Sensibilité au réseau électrique

En complément de l'étude ornithologique et de la recherche bibliographique des cas d'électrocution d'oiseaux constatés, une étude cartographique et sur le terrain permet d'apprécier le risque d'électrocution.

La cotation du risque d'électrocution

Le classement par poteau doit faire apparaître une cotation entre 1 et 3, du moins urgent au plus urgent à traiter.

Les poteaux :

- **côtés 3** (couleur rouge) **sont à traiter en priorité.**
- **côtés 2** (couleur orange) **sont à traiter en seconde priorité.**
- **côtés 1** (couleur bleue) **ne sont pas prioritaires.**

Une fois neutralisé le poteau est à indiquer en vert.

Cette cotation est une moyenne approximative des cotations se rapportant aux facteurs de risque de collision suivants :

- la dangerosité intrinsèque de l'armement,
- la richesse spécifique du secteur environnant,
- l'attractivité du support pour l'avifaune,

Cotation	Poteau X
Dangerosité de l'armement	Cotation entre 1 et 3
Richesse spécifique du secteur	Cotation entre 1 et 3
Attractivité du support	Cotation entre 1 et 3
Total des cotations	Total compris entre 3 et 9
Cotation moyenne	<ul style="list-style-type: none"> ▪ total entre 8 et 9 : poteau côté 3 ▪ total entre 5 et 7 : poteau côté 2 ▪ total entre 3 et 4 : poteau côté 1

Tableau n°6 : Méthode d'évaluation du risque de mortalité par électrocution causé par les poteaux

Le danger potentiel de l'armement

Pour chaque armement du réseau aérien HTA, l'analyse du risque d'électrocution a été hiérarchisée selon ce tableau :

Armement des ouvrages	Observations	Cotation
Tout armement ayant causé l'électrocution d'un oiseau	Tout poteau repéré grâce à la fiche de saisie (figure n°2) ou à une campagne de prospection	3 – danger très important
Interrupteur aérien		
H61	Surtout avec parafoudres posés en partie haute et éclateurs	
Ponts nus au-dessus ferrure (ex IACM, et parafoudres en partie haute)		
NHR – NH – NVR (1)		
Dérivation complexe	Nécessitant une protection supplémentaire par rapport aux ponts gainés	2 – danger important
E.R.A.S.		
3 CI (1)	Dangereux au niveau de la phase sommitale	
3 BI (1)		

1 BT + 2 BP (1)		
3 BP (1)		
Cabine haute	Ponts nus	
Dérivation	Ponts nus	
VR (1)	Sauf VR gainé (alors risque 0)	1 – danger peu important
1 CT + 2 CI		
1 BT + 2 BI (1)		
NV suspendu (1) (2)	Parfois très dangereux en phase centrale	
Portique suspendu		
Unifilaire (3)	Sauf cas rares pontés par-dessus (alors risque noté 3)	

Tableau n°7 : Cotation du danger intrinsèque des armements relatif au risque d'électrocution

Légende :

(1) : pour un poteau bois non mis à la terre, minorer d'un point (-1)

(2) : dans le cas de chaînes de 3 isolateurs, ou avec contrepoids, majorer de 2 points (+2)

(3) : lorsque le pont est près de la tête du support, majorer de 2 points (+2)

8. Coût des opérations

Sur une ligne aérienne, on retrouve des supports d'alignement mais aussi supports d'arrêt, des supports d'étoilement des IACM et des transfos haut de poteaux (H61). Dans le cadre de la budgétisation des enjeux sur le site du Verdon (Alpes Hautes Provence), ERDF Méditerranée avait chiffré entre 20 et 30 k€ par km. Sur une zone de plaine faiblement densifiée, le nombre de support sera plus faible, mais ce n'est pas la caractéristique de la région d'étude. Cela ne comprend pas l'enfouissement qui est aussi une réponse mais beaucoup plus chère.

Dans le cadre du CSP, les centres sont également engagés dans le Plan Aléas Climatique qui prévoit de traiter 20.000 km d'ici 2015. Ces lignes en milieu rural vont contribuer à diminuer le risque avifaune.

ITALY / ITALIE

Follow-up of Recommendation No. 110 (2004) on minimising adverse effects of above-ground electricity transmission facilities (power lines) on birds

Governmental Report prepared by the Ministry for the Environment, Land and Sea

Power line electrocution and collision cause annual death of several thousands of birds around the world (Bevanger 1994) and, in some areas, it is considered the main reason for the decline of endangered species (Ferrer 1991). Some numbers of the phenomenon:

- 96.000 Tetraonidae dead/year estimated in Norway for collision with high voltage lines;
- 10% of 195 European avian species included in SPEC (*Species of European Conservation Concern*) categories, have in the impact against power lines a potential threat responsible for its decline or vulnerability.

Moreover electrocution costs billion of dollars annually to U.S. energy suppliers because of power lines interruptions and repairs.

In Italy power lines casualties affect at least 95 species (19% of Italian avifauna). The 49% of these species belong to the SPEC 1, 2 and 3. Depending on the different eco-morphological characteristics, birds groups are more or less susceptible to collision or electrocution. Corvids (Passeriformes) and diurnal raptors are the groups more susceptible to electrocution whereas the Greater Flamingo (*Phoenicopus ruber*) Herons, Waders and Gulls are depleted by collision with power lines.

In order to reduce power lines mortality and to adopt the Bern and Bonn Convention recommendations, in May 2008 the Italian Ministry of the Environment, Land and Sea issued "Guidelines for mitigation of impact of power lines on birds" ("Linee guida per la mitigazione dell'impatto delle linee elettriche sull'avifauna").

The publication – at present only in Italian – is available on Ministry web site (http://www.minambiente.it/export/sites/default/archivio/allegati/biodiversita/piani/linee_guida_linee_elettriche_avifauna_new.pdf).

These Guidelines provide technical protocols useful to make mitigation actions and suggest practical solutions to reduce power lines mortality risk,

In the Guidelines, in particular, are illustrated useful tools for mitigating collisions and electrocution risk in operation lines (safe pilons, insulators and cables to be used especially in new lines) and are indicated procedures to reduce casualties in operation/planned lines.

LATVIA / LETTONIE

RECOMMENDATION NO. 110 (2004) ON MINIMIZING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS

1. Policy of electric power company Sadales tīkls AS (DSO), whose main activities are: operation and development of distribution networks, supervision of electric power utilization, reduction of losses, accounting of electric power and providing new power connections, increase underground power connections.
2. In accordance with Sadales tikli AS (DSO) information 5800 nests of *Ciconia ciconia* are located on above-ground electricity transmission facilities. Special instruction for Sadales tikli activities related to stork nest on power lines was elaborated in close cooperation between company, Latvian Ornithological Society and State Nature Protection authorities

MALTA / MALTE

MALTA'S REPORT ON THE STATUS OF IMPLEMENTATION OF RECOMMENDATION NO. 110 (2004) ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS

The present contribution provides an overview on the current state of affairs with regards to the progress achieved vis-à-vis the goals of the Recommendation No. 110 (2004).

General Comment

It is worth noting that Malta does not operate a railway service within its territory, and as such no overhead electricity transmission lines, conductors and towers associated with railway infrastructure, are present in Malta.

In addition, two of the four voltage levels achieved and distributed in Malta fall under the category of medium voltage, as described in the Recommendation No. 110 (2004), the 11kV and the 33kV levels.

The 33kV systems consist of overhead lines and underground cables, with a length of 60km and 154km respectively. Mindful of the need to safeguard the environment and enhance energy efficiency, Enemalta⁴ is undertaking activities to improve its policy. For instance, future 33kV circuits shall be installed underground. On the other hand, the 11kV system spread throughout the Maltese Islands is predominantly installed underground, with future installations of 11kV circuits to be also laid underground. Enemalta has so far installed 1041km of underground cables and 159km of overhead lines for this service. Furthermore, Gozo is supplied with electricity from Malta via submarine cables.

By referring to the map⁵ showing the distribution of the voltage systems in Malta, one can note that the cliffs situated at the western and north-eastern coast of Malta are free from any medium and high voltage infrastructure. The coastal cliffs often support large colonies of seabirds some of which are legally protected. As such maintaining these locations free from electricity infrastructure significantly reduces additional impacts on flight paths, rafting zones and breeding sites for such species.

With regards to the specific paragraphs of the Recommendation, the status of their implementation is found below:

Paragraph 1: Take appropriate measures to reduce bird mortality

Front line prevention aiming at the reduction of detrimental effects to birds caused by above-ground electricity transmission facilities is taken at a primary stage when dealing with a planning proposal. On the basis of impact to visual amenity and landscape, the standard approach for such proposals is to recommend the refusal of such proposals within or in the vicinity of areas Outside Development Zone (ODZ) and notwithstanding that the proposal may or may not be located within an area sensitive to avifauna.

On the other hand, existing commitments for land use could exist requiring the installation of such amenities. On a proactive note, conditions appended to permits issued for such proposals, recommend the removal of any disused electricity poles within or in the vicinity of the proposed area.

⁴ Enemalta Corporation is the sole provider in the energy field in Malta, which offers a broad range of services to both the industrial, commercial and domestic sectors.

⁵ A map showing the distribution of the voltage systems in Malta can be found at <http://www.enemalta.com.mt/page.asp?p=927>

Paragraph 2: Apply, as far as possible, measures reported in T-PVS/Inf(2003)15, to avoid electrocution, collisions and reduction of habitat availability

Most of the measures reported in T-PVS/Inf(2003)15 are being indirectly applied through various initiatives and policies. Additionally, as stated above, the ordinary approach taken, when dealing with such issues, is to recommend the refusal of proposals for electricity poles in ODZ areas, notwithstanding that the proposal may or may not be located within an area sensitive to avifauna. If commitments for land use exist, requiring the installation of such amenities, underground installation and rerouting is recommended.

Presently, Malta is experiencing a shift towards the provisioning of electrical services, through underground trenches or tunnels, thus reducing the requirement for the installation of additional poles and transformers.

Paragraph 3: Exceptional high interest areas for birds and protected areas (Natura 2000 and Emerald)

As provided in the above, the installation of required services is being rerouted through underground tunnels and trenches. This approach is being widely used throughout the national territory including protected areas designated under the Natura 2000 and Emerald networks in Malta.

Paragraph 4: Systematically collect data

There are no documented bird collisions with electric powerlines in Malta.

Paragraph 5: Communicate to Standing Committee steps adopted

As yet, communication with the Standing Committee on the implementation of the Recommendation No. 110 (2004) has not occurred.

MOLDOVA / MOLDOVA

In December 2009 Moldova acceded to the Energy Community Treaty, signed in Athens on October 25, 2005.

According to Art. 2 of the Protocol of Accession of the Republic of Moldova to the Energy Community Treaty, (Annex to the Law on Joining Republic of Moldova of Energy Community Treaty (No.117 dated 23.12.2009), Ministry of Environment requires the § 4 (2) of Bird Directive (79/409/EEC) to transpose into national law by 31 December 2010.

Sequel two main nature laws - Law on Animal Kingdom and Law on Protected Areas have been screened for their compliance with the Bird Directive (79/409/EEC). More than dozens of other legislative documents have been taken into consideration during the checking of compliance of Moldova's legislation with the requirements of Bird Directive.

The legal gap analysis has been extended and focused on compliance of Moldova's legislation with the whole Bird Directive (not only § 4 (2)).

Most of the requirements of the Bird Directive (79/409/EEC) are present in Moldova's legislation. However, a number of legal gap exist and some provisions of Bird Directive (79/409/EEC) have to be transposed to Moldova's legislation, in particularly migratory species and protection of rare and endangered birds (species from Annex I of Bird Directive) has to be reflected in the Law on Animal Kingdom and Law on Protected Areas.

The Ministry of Environment has drafted amendments to the Law on Animal Kingdom and Law on Protected Areas which provides the implementation of the articles of the Birds Directive.

The project of amendments is subjected to the national approval process.

SERBIA / SERBIE

REPORT ON THE IMPLEMENTATION OF THE RECOMMENDATION No 110 (2004) ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS IN SERBIA

Towards implementation of the Recommendation No 110(2004) on minimising adverse effects of above-ground electricity transmission facilities (power lines) on birds in Serbia, as well as the integration this issue into sectoral policies, several important projects, strategies and policies have been started and are in progress in this field, and to make efforts to mobilize the necessary resources concerning monitoring and research and minimizing effects of above ground electricity transmission (power lines) on birds in Serbia.

1. The Current Legal Framework

- The National Strategy on Sustainable Development (2008-2017)
- The National Environmental Protection Programme (2010-2019)
- The National Strategy of Energy Development of the Republic of Serbia (2005- 2015)
- The Law on Energy
- The Law on Environmental Protection
- The Law on Nature Protection
- The Programme of implementation of the Strategy for Development of Energy of the Republic of Serbia (2007-2012)
- Treaty establishing the Energy Community between the EU and South-Eastern Europe has been signed in Athens 2005. by Albania, Bulgaria, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Romania, Serbia and Montenegro and and the Special Representative of the Secretary General on behalf of the United Nations Interim Mission in Kosovo have therefore take a step towards full integration of their energy markets into the EU energy market.

2. National observation and research activities as fundamental base for monitoring of effects of above ground electricity transmission facilities (Power Lines) on birds

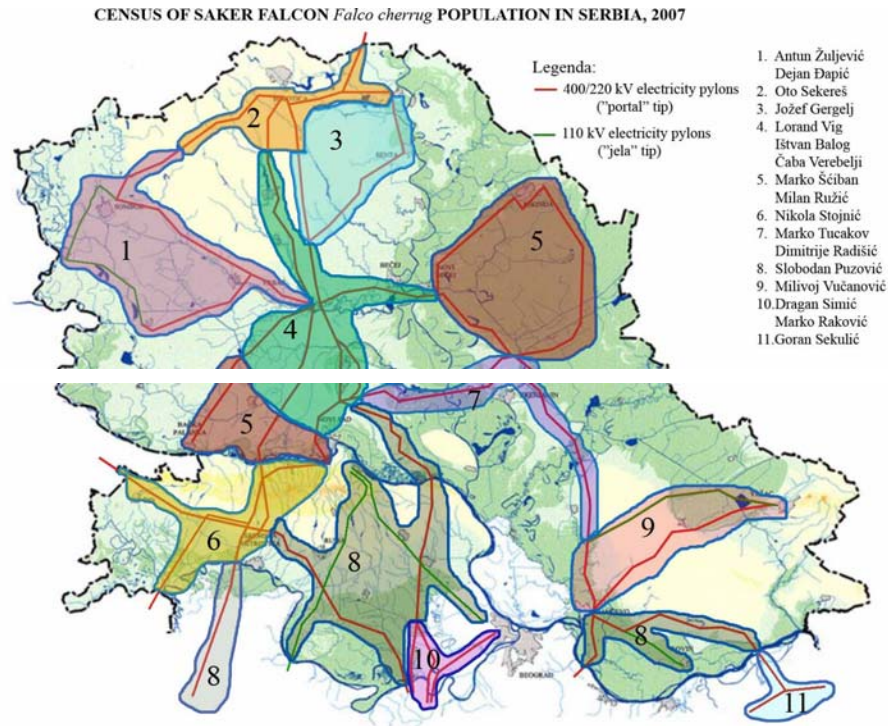
2.1 Project “Mapping of the nests of birds at electricity pylons”

Survey of the Saker Falcon *Falco cherrug* population in Serbia in 2007”, has been relised by the Bird Protection and the Study Society of Vojvodina and MME-Bird Life Hungary. Partners in this project are League of Ornithological Actions, Provincial Secretariat for Environmental Protection and Sustainable development and Institute of Nature Conservation of Serbia.

The main activity was to survey all areas where the reproduction of this species is potentially possible, focused on the power lines, steppe and saline habitats, forests beside larger rivers and localities around nearby settlements. All of *portal* type and great number of *jela* type of electric power pylons were covered during the project (2000 km of lines). Electricity pylons were observed in Macva and in northern part of Pomoravlje.

The special attention was concerned to the localities where the successful pair of Saker Falcon known from earlier years.

Project “Mapping of the nests of birds at electricity pylons” financial supported by IWC-UK (*International Wildlife Consultants Ltd)



2.2 Project “Installation of the Nest-supporting Platforms. for snuggling of rarity species of birds at the electric power pylons “

The Bird Protection and Study Society of Vojvodina has realized complex activities of Saker falcon Conservation. This species is the most important bird species breeding in Serbia, having a look at European context, having in mind that 13-15% of its entire breeding population breeds in Serbia currently. The most recent estimate, from 2002 is 52-64 breeding pairs, but in most recent years population is lower. This species is classified as SPEC 1, the highest conservation category for Species of European Conservation Concern, and it is listed as Endangered on European IUCN Red List.

In Serbia Saker Falcon breeds almost exclusively on high-voltage electro pylons in Vojvodina, dispersed, but not far from the human settlements. This habitat element was inhabited by Saker Falcons in late 1970. In recent years the most serious conservation problem was lack of stability of nests - Saker does not build its own nests but occupies nests of other species, in most cases Raven *Corvus corax* or Carrion Crow *Corvus corone cornix*. These nests, built very high on the pylon can be disintegrated during the breeding season (from March to July) due to strong winds or heavy rain. Additional threat to the whole population is unsuitable management of high-voltage pylon by Elektromreža Srbije, public electro company, who owns the whole high- and mid-voltage network in the country. Their workers have in some cases completely devastated even active Saker nests, as they pose potential problem for the maintenance of nests.

The Bird Protection and Study Society of Vojvodina together with partners from Hungarian Ornithological and Nature Conservation Society, League of Ornithological Action, Provincial Secretariat for Environmental Protection and Sustainable Development and Institute of Nature Conservation of Serbia has mapped all the pairs of this species breeding on pylons in Vojvodina and installed 87 nest-supporting platforms. Each (wooden) platform is designed in order to support nest and prevent its destruction by any mean. Therefore, Sakers will have long-term stabile nests, suitable for breeding throughout the period of its maintenance. Using Hungarian experience, platforms are installed close to favorable feeding sites, not closer then 1 km from the settlement and on the places where territorial pairs without the nests were spotted before. Monitoring of occupation of these platforms, from which other species will benefit as well: Common Kestrel *Falco tinnunculus* and Hobby *Falco subbuteo*, is currently underway.

Alongside these activities, the Bird Protection and Study Society of Vojvodina organizes educational seminar for morked of Elektromreza Srbije once per year, where international expetrs and the whole management of this company are trying to find the most suitable solutions and harmonize power supply and birds conservation in Vojvodina

2.3 Project „Safe nests for white storks” realized by the Bird Protection and Study Society of Vojvodina, Provincial Secretariat for Environmental Protection and Susatainable Development and Institute of Nature Conservation of Serbiaand and Public Enterprice „Elektrovojvodina“.

Other stakeholders: meetings will be held with heads of the large state-owned utilities, in order to work towards sustainable solutions for future use of local resources: these should harmonize their interests with conservation needs. There are two major companies in the target group: the provincial water management, and the provincial forest company.

2.4 The White Storks of Serbia

In Serbia, a quarter of all White Stork (*Ciconia ciconia*) pairs breed in the villages along the lower Tamis river (in Vojvodina, the Pannonian province of Serbia), where excellent feeding grounds are still preserved. However, out of 273 local nests, 94 are placed on electrical transmission pylons. The threat that nesting on overhead wires poses to breeding has, together with the loss of traditional feeding areas, resulted in a clear reduction in the White Stork population in Serbia.

Land run through by the Tamis is rich in its variety of endangered habitats: 11,000 ha of ancient riverine forests still exist in the floodplain. Traditional villages, with their old rural architecture, are situated on the forest edges. The whole mosaic of habitats is of crucial importance for wildlife, particularly for birds. The Eurasian Spoonbill, Pigmy Cormorant, Ferruginous Duck, White-tailed Eagle, Whiskered Tern and even the Glossy Ibis are just some of the regular and potential breeding birds in the area.

Preliminary data, as yet incomplete, indicates a rich biodiversity in the habitats along the lower Tamis; the White Stork, as a characteristic and charismatic species, will be used as a tool to preserve and promote the local natural heritage. This action is particularly important in the 23 local villages, and we will use direct contact, distributed information material and the media. At the same time we will carry out detailed habitat and species mapping – with emphasis on the avifauna. The main philosophy of the project is based around physical protection of the local White Stork population by erecting artificial nesting platforms on the pylons, outside the breeding season. This very visible action will address the conservation needs of the whole area as well as sending a message to the local community that they have something worth protecting, and the power to do something about this lies in their hands.

Three levels of activities will be performed:

- The local community: local wardens will be identified and trained for the protection of White Stork nests (ie local people who might have a nest on their house). Working meetings will be held, to promote local natural values and the need for their protection.
- The municipality: the future of White Storks and their habitat locally is very dependent on the local authorities: thus a local White Stork Protection Plan (WSPP) will be prepared and presented to the Councils of five local municipalities.





As main activity foreseen in the project, erection of nest-supporting platforms for White Storks has been carried out in project villages along the Lower Tamiš river. Platforms were constructed according to the technical project designed by experts of Elektrovojvodina Public Enterprise. According to the previously signed contract, local mobile teams in Zrenjanin branch of Elektrovojvodina have installed platforms in following villages: Orlovat, Botos, Taras, Tomasevac, Sakule, Perlez, Neuzina, Belo Blato and Banatska Dubica. Platform erection started in early March, after period of very cold weather, and was finished at the same time with the first arrivals of White Storks on spring migration. The first local birds are already sitting on and repairing their new and safe nests.

Local communities were very interested about this rather unusual action, and they actively participated in it by helping project coordinator as volunteers. Namely, initial layer of nest material has been fixed on every platform before its very erection to the electric pylons. Local inhabitants in all villages were very keen to help in this action. After nest material was fixed, it was sprayed with white colour which imitate bird's excrements. All voluntary participants were supplied by project's stickers and brochures.

On February 23rd 2005 a media presentation of project was held in Taras village, where 11 platforms were installed. Mr. Dragan Babic, deputy director of Elektrovojvodina attended the presentation, together with Mr. Vukasin Tolmac (local mayor) and local environmental authorities. The presentation resulted in filmed report on prime-time news on RTS, the largest broadcasting station in Serbia, as well as in reports in all state level and local newspaper and weeklies. Mr. Babic said that Elektrovojvodina appreciate this very new and effective way of simultaneous solution of two problems: ecological (electrocution of adult storks and chicks on the nests) and economical, since heavy nests have often caused short circuits and difficulties in electricity supply.

Continuously bad weather slowed White Stork migration on the eastern flyway in spring. Due to heavy rains in March and April, many of individuals and pairs returned to their breeding sites much later than it is phenologically normal, and thus breeding started considerably later. However, we conducted monitoring of occupancy of installed nest-platforms in July.

Its aim was to establish percentage of occupied platforms (on which breeding occurred) and to examine stability of platforms. All 10 nests on installed platforms in village Taras are occupied, 8 of 10 in Neuzina, 7 of 10 in Orlovat, 6 of 8 in Botos, all 4 platforms in Perlez, 3 of 4 in Sutjeska, all three in Tomasevac and Belo Blato, respectively and both platforms we erected in Sakule. Since White Storks occupied nests on 46 of 54 platforms, and reared their chicks on them, 85% success make the project efforts and organization almost successful.

Many of unoccupied nests erected near existing breeding places were used as daily resting and roosting posts for adult storks. It to be expected that more nests will be occupied and used for breeding in following years.

3. Ongoing activities concerning policy and strategy level

Towards harmonisation of the regulations in the area of the nature protection and biodiversity, as well as towards the implementation of the Recommendation No 110 (2004), several documents have been elaborated and are in progress in this field.

- The National Strategy for Sustainable Use of Natural Resources and Goods
- The National Strategy on Biodiversity Conservation and Action Plan
- Rulebook on particular technical and technological solutions which facilitate undisturbed and safe communication of wild animals will be established by the Ministry of Environment and Spatial Planning and Ministry of agriculture, forestry and water management

REFERENCES:

-Report on State of Environment in the Republic of Serbia-2009.

-National report of Serbia on the implementation of the Convention on the conservation of migratory species of wild animals (SMC)

- Project reports made by the NGO-Rufford Small Grants Foundation for Nature Conservation and the Institute of Nature Conservation of Serbia

<http://www.energy-community.org/>

<http://www.ruffordsmallgrants.org/rsg/Projects/MarkoTucakov>

Tucakov, M. (2005): Safe nests for white storks. Danube Watch 4/2005

Project report: Survey of the Saker Falcon *Falco cherrug* population in Serbia in 2007

Project report: Conservation of Saker Falcon *Falco cherrug* in Serbia in 2007 and 2008

Prepared by Snezana Prokic,
Focal Point for Bern Convention

Belgrade, 29th June 2010.

SLOVAKIA / SLOVAQUIE

<p align="center">NATIONAL REPORT ON IMPLEMENTATION OF THE RECOMMENDATION 110/2004 DURING 2005-2010 IN THE SLOVAK REPUBLIC</p>
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Prepared by Mr Michal Adamec, Mrs Lenka Viteková and Mrs Michaela Mrázová,
State Nature Conservancy of Slovak Republic
And
Mrs Jana Durkošová, Ministry of the Environment of Slovak Republic

Introduction:

Implementation of this recommendation in Slovakia is based on the existing legal tools, guidance for respective nature protection bodies, cooperation with electric energy distribution companies and practical measures executed both by governmental and non-governmental bodies. Therefore the national report, apart for the reply to 4 specific parts of the recommendation, includes the additional information on legal, institutional framework and examples of activities.

Legal and institutional framework:

The Act No 543/2002 Coll. on Nature and Landscape Protection as amended provides for general plant and animal protection (§ 4) with specific provision on electricity lines in the provisions § 4.4 and §4.5:

<p align="center">§ 4</p>

<p align="center">General Plant and Animal Protection</p>

<p>(1) Everyone during conducting any activity that may endanger, damage or destroy plants and animals or their habitats is obliged to avoid their needless killing or damage and destruction.</p>
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<p>(2) If the activity described in Section (1) results in the endangerment or degeneration of plant and animal species, in damage to their reproductive capabilities or threatens the extinction of their population, the state body of nature and landscape protection (hereinafter referred to as the "nature protection body") may following the prior notice restrict or prohibit this activity.</p>

<p>(3) Capture and killing of animals in places of their natural occurrence is prohibited. This prohibition does not apply in cases when capture and killing is carried out in relation to scientific research or immediate threat or damage to human lives or health, or property damage or if provided in special regulations 17) or Part Three of this Act.</p>
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<p>(4) Everyone who constructs or carries out scheduled reconstruction of overhead electricity lines is obliged to use such technical solutions that prevent from killing birds.</p>
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<p>(5) If killing birds on electricity lines or telecommunication facilities is verifiable, the nature protection body may rule that an administrator of electricity lines or telecommunication facilities has to adopt measures to prevent killing birds.</p>
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According to the Act the district/regional **environmental offices give opinion for each territorial decision or building permits** (including those for the electricity network) that is the opportunity to request for considering the issue of negative effects of 22 kV lines on birds. Environmental offices have been asked to thoroughly check all the plans and request (in all the new facilities) to install the appropriate models of construction and in sites of high importance for birds (with verified damages) to insist on underground powerlines.

In **2007** the Ministry of the Environment of SR (in close cooperation with the State Nature Conservancy of SR, expert body of the Ministry of the Environment of Slovak Republic) prepared the more detail **guidance** for district environmental offices to improve situation with the bird mortality on 22 kV electric powerlines. This guidance is available only in Slovak language. It includes the description of appropriate technical solutions both for mountainous and plain sites (picture in the bellow text), summary and short analysis of the relevant provisions of the Act and suggestions for further solution (such as not legally binding meetings with the energy companies before the decision is made) in order to find the most appropriate solution in the concrete site.

In addition the Act provides for the **obligation to report** when finding killed or hurt protected species. If this relates to the damages at the electric poles/powerlines, the nature protection institutions submit to the relevant district environmental office an proposal to make measures at the problematic section of the electric powerlines. Since May 2010 the State Nature Conservancy of Slovak Republic is in charge of **monitoring of incidental killing/damage** of protected animals.

The cooperation with electric energy distribution companies:

The cooperation among the State Nature Conservancy of Slovak Republic and all 3 electricity companies is of very high importance as they operate within the whole country. The competency of respective companies is given in the map bellow.



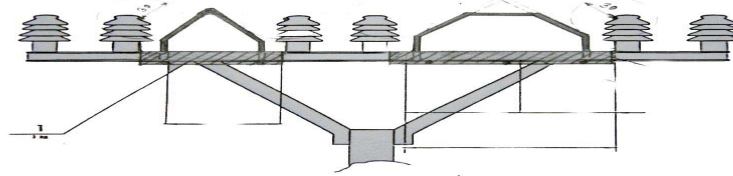
The State Nature Conservancy of the Slovak Republic has signed the agreement on cooperation with the Eastern Slovakia Energy Company, the Central Slovakia Energy Company as well as the Strategy to eliminate threats of the 22 kV electricity power lines on birds (including the time table of activities in respective years – tackling the priority sections; cooperation in new methods, etc.). The Western Slovakia Energy Company was a partner in the LIFE project Conservation of *Aquila heliaca* in the Slovak part of the Carpathian Basin (LIFE2003NAT/SK/000098) dealing among others with concreted measures on 22 kV lines (namely action promoting modification of electric poles by creating pressure on the Ministry of Economy).

According to the agreement with the Eastern Slovakia Energy Company each year one SPA is tackled, e. g. all the power lines are „protected“ against the bird mortality. There is an annual meeting (control day) after undertaking of these measures to evaluate their efficiency and to suggest steps for next year. So far the situation was improved within 2 SPAs (SPA Košická kotlina and SPA Ondavská rovina).

Specific information to the recommendation's parts 1 a 2 (measures):

As already explained, all the new electric poles must be constructed in the way minimizing negative effects on birds. Also within existing electric poles in problematic sections the technical measures are undertaken. The precise statistics is not completed (data base is created gradually with respect to the total number of electric poles, on various types and numbers of cross-arms/other technical measures and data are not available yet).

At present the most appropriate type for the existing electric poles of the electricity lines is the following **model of the additional preventive „protector“** (being used by all 3 electricity companies after the agreement with the State Nature Conservancy of SR and NGOs):



At present also the new approach is tested (within the electricity company in the Eastern Slovakia) to use the wooden poles that are more appropriate for the bird protection (they are less conductive therefore killing and damaging of birds should be limited).

Specific information to recommendation's part 3 (underground lines in sensitive areas):

Development (reconstruction) of the electric lines via the underground installation is required but in practice not feasible (being very expensive). Therefore this approach is not realistic neither in large scale areas (SPAs in Slovakia cover over 25 % of the territory) nor in other nature reserves such as wetlands visited by the birds (where it is too complicated to install underground lines). The most appropriate solution is using so-called triple cable in which all the 3 conductors are within one cable that is better visible and does not present so dangerous barrier like 3 parallel conductors.

Specific information to recommendation's part 4 (systematic data collection of collision and killing):

Systematic collection of these data is undertaken by the State Nature Conservancy (within its annual plan of main tasks) via the regular personal checks of the electricity line zones. This obligations is since May 2010 anchored in the national legislation – in the §65 part 1 k)22.

In additions these activities are executed by NGOs and by the employees of the electricity distribution companies. There are 2 ongoing LIFE projects (for Aquila heliaca and for Falco cherrug) that tackle the issue of minimizing bird mortality and some are under preparation.

Details on practical measures:

Details of the activities of the State Nature Conservancy of the Slovak Republic aimed to minimize negative impacts of the 22 kV powerlines:

These activities are for many years included in the annual work plan of the institution. They consist of identification of the most dangerous facilities (both constructions and power lines) via systematical and ad hoc monitoring of killed/hurt birds, compilation and processing of data, supervision on practical application of nature protection decisions and of improvement of identified problematic facilities. For instance **in 2008** there following activities were undertaken:

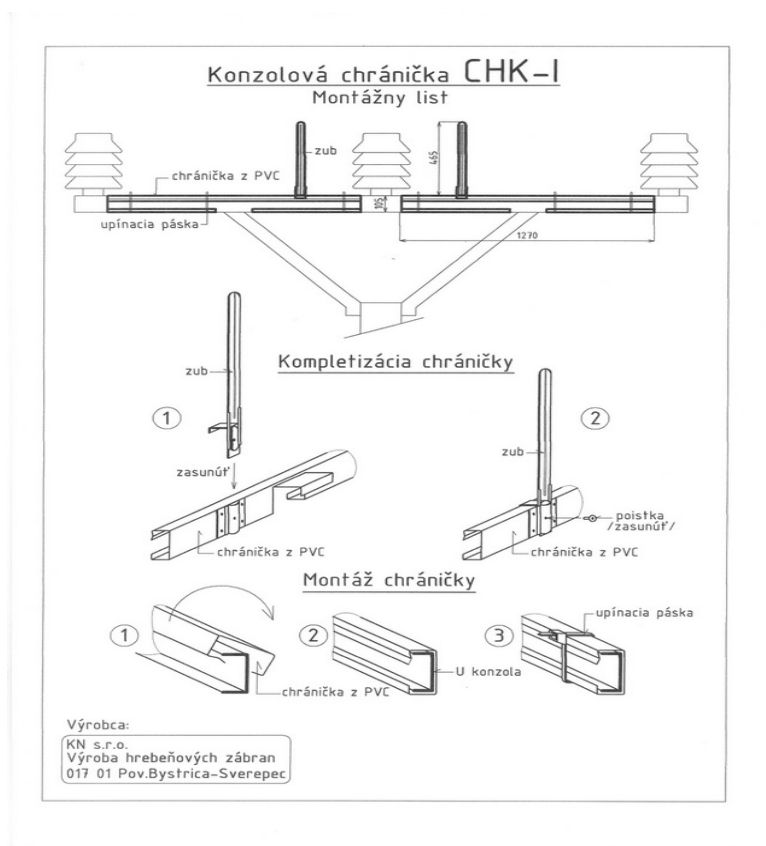
- several negotiations with all 3 energy companies and with the Slovak energy transmission network resulting in signing agreements on data exchange and common approach and in preparation of a long-term strategy;
- common control days (energy companies/nature protection bodies) organized with presentation of the appropriate technical solutions;
- mortality monitoring at selected sections which - where needed - followed by negotiations (for instance in the section Žilina-Porúbka-Rajecké Teplice-Rajec);
- supervision of taken measures within the Malá Fatra National Park;
- requests to district environmental office (Zvolen, Banská Bystrica) to ask for preventive installation on 22 kV electric lines (between Sliač and Badín, Iviny and Vígľaš) and within the Záhorie Protected Landscape Area;
- more detail monitoring at the 22 kV lines in Čierny Balog, Vígľaš – Rohy, Detva, Piešť', Holcov majer (Poľana Protected Landscape Area), sections Jesenské – Rimavská Seč, Rimavská Seč –

Bátka (Cerová vrchovina protected Landscape Area), in Veľká Fatra National Park and Slovenský Kras National Park;

- mapping in other selected places – electricity towers and 10 sites with artificial nests for *Falco cherrug*; collection and processing of data and implementation of further elimination measures;
- Examples of additional activities of the State Nature Conservancy of SR in 2009:
 - mapping of problematic sections;
 - collection of data on killed birds often leading to practical measure (such as near village of Dubové or within NP Malá Fatra where after documentation of the killed eagle the problematic coloms were protected); monitoring of efficiency after „protecting“ of electric poles;
 - work with media.

Similar activities are done by NGOs. For instance Raptors Protection in Slovakia via several project implemented both public awareness activities (leaflet on Poles of Death, exhibitions, negotiations...) and practical measures for monitoring of the most problematic sections (based on data compiled from the field mapping on 1850 km electric power lines). Insulation of poles (within the LIFE project totally 851 km of dangerous power lines were protected/improved) as well as construction of artificial nests for concerned birds. In 2006 new technical solutions have been suggested – currently implemented partially. In selected sections other measures have been implemented – to mark electric lines to be more visible (for species such as *Otis tarda*). These activities were coordinated with the State Nature Conservancy of Slovak Republic.

Details on construction of above mentioned protector:



June 2010

SPAIN / ESPAGNE

SUIVI DE LA RECOMMANDATION N° 110 (2004) SUR L'ATTENUATION DES NUISANCES DES INSTALLATIONS AERIENNES DE TRANSPORT D'ELECTRICITE (LIGNES ELECTRIQUES) POUR LES OISEAUX

L'application des cinq paragraphes de la Recommandation n° 110 (2004) en Espagne est accompli par le *Décret 1432/2008, du 29 Aout, qui établit des mesures pour la protection de l'avifaune contre la collision et l'électrocution sur les lignes électriques à haute tension*, publié au Journal Officiel (BOE n° 222) du 13 Septembre 2008, et dont vous trouverez une copie ci-jointe.

Le bût du Décret 1432/2008 est d'établir des normes techniques d'application sur les lignes électriques aériennes à haute tension comportant des conducteurs nus et placées dans les suivantes zones de protection :

- a) Les Zones de Spécial Protection pour les Oiseaux classés au titre du Réseau Natura 2000
- b) L'aire d'application des Plans de Récupération et des Plans de Conservation élaborés par les Communautés Autonomes pour les espèces d'oiseaux inclus dans le Catalogue Espagnol des Espèces Menacées ou dans les Catalogues des Régions Autonomes.
- c) Les aires prioritaires de reproduction, alimentation, dispersion et concentration locale des espèces d'oiseaux inclus dans le Catalogue Espagnol des Espèces Menacées ou dans les Catalogues des Communautés Autonomes, quand dites aires ne sont pas déjà comprises dans les paragraphes a) et b) avant mentionnés.

Ce Décret est d'application aux lignes électriques aériennes à haute tension placées dans ces zones de protection autant de nouvelle construction qu' aux lignes déjà existantes.

D'autre part, plusieurs Communautés Autonomes avaient avant la publication de dit Décret, sa propre législation concernant l'atténuation des nuisances des installations de transport électrique pour les oiseaux :

- *Décret 129/1991, du 4 Avril, sur l'établissement des normes techniques pour les installations électriques au bût de protéger l'avifaune* (publié au Journal Officiel de Navarre n° 53, le 26 Avril 1991)
- *Décret 73/1996, du 21 Mai, sur les conditions techniques qui doivent être remplis par les installations électriques dans la Communauté Autonome d'Extremadura pour la protection du milieu naturel* (publié au Journal Officiel d'Extremadura n° 61, le 28 Mai 1996)
- *Décret 32/1998 du 30 Avril sur l'établissement des normes techniques pour les installations électriques au bût de protéger l'avifaune* (publié au Journal Officiel de La Rioja n° 54, le 5 Mai 1998)
- *Décret 40/1998 du 25 Mars sur l'établissement des normes techniques pour les installations électriques pour la protection de l'avifaune* (publié au Journal Officiel de la Communauté de Madrid n° 71, le 25 Mars 1998)
- *Décret 5 /1999 du 2 Février sur l'établissement des normes techniques pour les installations électriques aériennes à haute tension et lignes aériennes à basse tension aux fins de protection de l'avifaune* (publié au Journal Officiel de la Communauté de Castilla – La Mancha n° 9, le 12 Février 1999)
- *Décret 34 / 2005 du 8 Février, du Gouvernement d'Aragon sur l'établissement des normes techniques pour les installations électriques aériennes aux fins de protection de l'avifaune* (publié au Journal Officiel de la Communauté d'Aragon n° 26, le 28 Février 2005)
- *Décret 178 / 2006 du 10 Octobre, sur l'établissement des normes de protection de l'avifaune pour les installations électriques à haute tension* (publié au Journal Officiel de la Communauté d'Andalucía (BOJA n° 209), le 27 Octobre 2006)

UNITED KINGDOM / ROYAUME-UNI**FOLLOW-UP OF RECOMMENDATION No. 110 (2004) ON MINIMISING ADVERSE EFFECTS OF ABOVE-GROUND ELECTRICITY TRANSMISSION FACILITIES (POWER LINES) ON BIRDS**

The effects of power lines on birds is not seen as a major issue in the UK, as many of the most dangerous types are not used, and this is somewhat reflected in the “nil” returns I received from the various country contacts when seeking an update on the 2009 report which we submitted. The 2009 report still stands therefore and I can confirm that the guidance which Scotland is drafting for power line surveys has been further delayed, but it is still their intention to publish after some revisions have been made.