

**CARPE PHASE IIa - FINAL TECHNICAL REPORT
2003-2006**

**SANGHA TRINATIONAL LANDSCAPE (REPUBLIC OF CONGO)
(WCS LEAD)**

1. INTRODUCTION

Landscape segment: Sangha Trinational – Republic of Congo

Landscape segment leader: WCS

Funding: \$2,280,698

Cost share: \$2,090,338

1.1 GOAL AND OBJECTIVES

The overall goal of the Sangha Tri-national Landscape (Republic of Congo) is:

“To conserve wildlife and their habitat in the Sangha Tri-National Forest Landscape using a wildlife-focused approach to landscape planning and implementation, and by synthesizing and disseminating lessons learned to promote the adoption of best practices at WCS and within the conservation community”

The following three objectives constitute a simple three-part structure: 1) strategic planning, 2) effective implementation and 3) monitoring, measuring effectiveness and adaptive management, that provides an integrated framework for conservation action within the Sangha Tri-National Forest Landscape.

Objective 1: Develop and adopt a participatory strategy to reduce threats to natural resources and human welfare within the Sangha Tri-National Forest Landscape.

Objective 2: Develop and implement mechanisms to strategically address threats to natural resources and human welfare across the Sangha Tri-National Landscape.

Objective 3: Develop and implement locally appropriate tools to measure conservation effectiveness and adapt the conservation strategy as the context changes.

1.2 SUMMARY OF ACHIEVEMENTS

1. The Nouabalé-Ndoki National Park remained free from poaching and other illegal activities, thus safeguarding the core protected zone of the TNS-ROC.
2. Sustainable funding mechanisms for the Nouabale-Ndoki National Park were initiated, with the implementation of ecotourism in the NNNP and launching of the TNS trust fund in cooperation with the neighbouring countries.

3. The TNS Trust Fund moved closer to implementation with the creation of the central administrating committee of the Fund and the nomination of its members from each of the three states.
4. The Kabo FMU (bordering the southern limits of the Nouabale-Ndoki National Park) was awarded FSC certification in June 2006 following the adoption of its management plan in March, thus raising the bar for sustainable forestry management practises in the Republic of Congo.
5. Community Natural Resource Management Committees and zoning plans were established and adopted by the Kabo FMU management plan, thus formalising the role of local communities in natural resource management planning.
6. Innovative measures to address and mitigate human-elephant conflict were implemented in villages surrounding the Nouabale Ndoki National Park.
7. The first landscape-level monitoring program was completed in TNS-ROC, providing standardised indices on the impact of improved management strategies on wildlife populations.
8. Significant capacity building in all domains, from research and monitoring, protected area and natural resource management, education and ecotourism was conducted, involving WCS Congolese project staff, local communities MEFE collaborators and personnel from the National Government Monitoring Agency, CNIAP.
9. Transboundary patrols conducted and coordinated with colleagues from Cameroon and Central African Republic were significantly increased in order to address escalating cross-border threats to wildlife.

2. MAJOR ACCOMPLISHMENTS AND RESULTS

CARPE SO: Reduce the rate of forest degradation and loss of biodiversity through increased local, national, and regional natural resource management capacity.

Intermediate Result 1: Natural Resources Managed Sustainably

Indicator 1.1: Number of landscapes and other focal areas covered by integrated land use plans

- The first draft of the Sangha Trinational Land Use Plan and Strategy was completed, together with accompanying maps of land-use plans and major management axes of intervention. The Sangha Trinational is the first of the 11 priority landscapes in the Congo Basin to develop a transboundary land use plan strategy document. This document represents a synthesis of over 15 years of land-use planning and management experience from each of the three country sectors together with significant biological, geographical and socio-economic data gathering. The land use plan strategy document incorporates a macro-zoning plan for over 3.5 million hectares of land incorporated in protected areas, commercial and community logging concessions, community natural resource management zones and professional hunting zones. It is also being used as a technical document for the development of the first ever transboundary trust fund in the Congo Basin.

Indicator 1.2: Number of different use-zones within landscapes with sustainable management plans

The Nouabale-Ndoki National Park (NNNP)

- The Nouabale-Ndoki Management Plan, adopted in June 2003, was published and distributed to MEFE officials and other stakeholders. The Presidential decree confirming the extension of the NNNP to its current limits was officially adopted and is currently pending signature.
- A focus on law enforcement monitoring and strategy planning has contributed significantly to an effective adaptive management approach by the NNNP. Following a substantial increase in elephant poaching activities originating from CAR in the western sector of the NNNP between May and August 2003, anti-poaching efforts in the western and northern sectors of the park were significantly strengthened in September/October 2003. Rapid response by NNNP management staff has thus far proved effective, with no further cases of elephant poaching reported. Significant threats to the northern and western borders of the Park remain however. In the northern border area of the NNNP, uncontrolled hunting in the Mokabi forestry concession resulted in seven arrests and 10 illegal firearm seizures in a single three-week mission in 2006. An advanced guard camp for the NNNP in the southern Mokabi sector has been constructed, and we anticipate further increases in the rate of return of patrols in this sensitive northern border area, prior to an overall reduction in poaching and illegal activities. In the western border zone, the threats of hunting and illegal incursion into the Park from the Central African Republic persist. Binational patrol effort in this area has been doubled to joint patrols each quarter and proposals drafted for the formation of the first Sangha Trinational brigade in order to effectively address cross-border threats in the core protected zone of the TNS.
- Year 2006 marked a significant expansion of ecotourism activities by WCS and partners in and around the NNNP. Ecotourism is a major potential strategy for contributing towards both sustainable and long-term financing of the NNNP as well as improved livelihoods of local communities (see *Success Stories*). Following completion of new tourist infrastructure in the NNNP in 2005, substantial contacts were made with a number of international tour operators – with a primary focus on gorilla viewing at Mbeli Bai. Between July and September a total of 78 international tourists visited the NNNP, staying a total of 296 visitor nights inside the National Park, and generating €44,400 in total receipts, including €4,520 for the Congolese Ministry of Forestry Economy and the Environment. A further 125 visitor nights spent at the NNNP headquarters helped raise a total of €3,214 for the fund for local village development. Of these visitors 80% combined their trips into a Binational tourism package with Dzanga-Ndoki National Parks. Expansion of new tourism activities and products for 2007 is already underway with new WCS management of a gorilla habituation program and personnel training underway for a new chimpanzee trekking activity.
- An ecotourism strategy has been developed for the NNNP and will be used to cement private sector investment in ecotourism through conservation and development funding partnerships over the coming year.

Forestry Concessions

- In June 2006, FSC awarded certification to the Kabo concession. This is an important achievement, not only because it demonstrates the logging company's commitment to sustainable management, but also because certification sets standards for social investment in forest and wildlife management. This follows from the official adoption of the Kabo FMU management plan, which was formally adopted in March 2006 by the government of Congo. The plan describes the steps to be taken by the company to meet FSC standards. WCS-PROGEPP played an important role in the creation of the Kabo management plan, contributing social and ecological data to the document as well as the chapter on wildlife management. The management plan formally adopted most of the management systems developed by WCS-PROGEPP, including control of hunting through law enforcement, establishment of hunting zones, importation of domestic meat into the forestry sites, and support of alternative activities to hunting. The plan also incorporated important conservation set-asides, in particular over 15,000 hectares of forest of the Djeke and Mombongo zones of the Bomassa Triangle, an important community conservation corridor within the Sangha Trinational. The management plan will serve as a model for plans for other forestry concessions in northern Congo, making wildlife management, biodiversity conservation, and sustainable development essential elements of forestry.
- Management plans for the remaining CIB concessions in the TNS – Pokola and Loundougou-Toukoulaka are currently in progress. The Kabo FMU management plan will set the standards for these plans, and the PROGEPP model for wildlife management will be incorporated (see *Success Stories*).
- The Rougier group have expressed renewed interest in developing a formal collaborative agreement with WCS to establish a sustainable wildlife management program in their Mokabi forestry concession to the north of the Nouabalé-Ndoki National Park, based on WCS's experiences with the PROGEPP model. Rougier are currently looking to develop a forestry management plan across the whole of the Mokabi-Dzanga FMU. Formal discussions with WCS at both the international and site level have nevertheless focused on wildlife management and law enforcement activities in the southern sector of the original Mokabi UFA, where threats to the northern border of the NNNP are greatest, and where the impacts of the imminent Public Access Road are likely to have the greatest effect. A draft collaborative agreement outlining axes of intervention is currently under development. The expansion of the PROGEPP model to the Mokabi concession will mean that the entire buffer zone of the NNNP, over 1.8 million hectares, will lie under improved management.

Community Natural Resource Management Zones

- Significant steps towards incorporating local people into wildlife management and natural resource management have been made by WCS-PROGEPP with the local communities in the periphery zone surrounding the NNNP. This has been accomplished largely through the creation of natural resource committees in each village and camp, and the expansion of the environmental education program in

schools. Considerable information gathering on local livelihoods and utilization of resources contributed significantly to the Kabo FMU management plan, which will be extended to the development of both Pokola and Loundougou-Toukoulaka management plans in 2007. Furthermore, considerable steps to protect the rights of indigenous forest people to have access and harvest their natural resources have been taken. Both through the adoption of the zoning system developed by PROGEPP into the Kabo management plan and by working to ensure that wildlife law enforcement does not impede their ability to hunt and gather resources.

- An experimental approach to mitigating human-elephant conflict was launched in the villages of Bomassa and Bon Coin, on the periphery of the Nouabalé-Ndoki National Park. The approach employed lessons learned from Zimbabwe in adopting chili pepper as a suitable deterrent to crop raiding elephants. The peppers also have the added benefit of providing revenue for local communities through commercial production and sale at local markets. Using lessons learned from measures to mitigate elephant crop damage in Bomassa village, a human elephant conflict strategy was implemented in Kabo including scaring elephants away from villages and setting up an experimental field program to determine the best method for protecting agricultural fields (see *Success Stories*).
- Official participatory forums enabling local communities to address human-elephant conflict issues and other concerns relating to wildlife and natural resource management, to wildlife authorities were created in Bomassa village in the periphery of the NNNP. Furthermore, official guidelines for the creation and functioning of a local community development fund that directly manages ecotourism revenue were signed and adopted by the village committee of Bomassa, thus reinforcing the direct links between conservation and livelihoods in and around the Nouabale Ndoki National Park. These documents also pave the way for the eventual creation of the Bomassa Community Reserve, following the termination of current timber exploitation activities in 2009.

State of the Forest Report for the Congo Basin:

- The first phase of the landscape ecological monitoring program was completed in the ROC sector of the Sangha Trinational. This zone encompasses over 2.8 million hectares of land under improved management and incorporates contiguous zones of the Lac Tele-Lac Tumba landscape (ROC). The overall goal of the monitoring program is to evaluate the impact of management strategies on wildlife populations over time. In order to achieve this, the principal objectives of the program are a) to provide punctual information on the status of wildlife populations, with a focus on large mammals b) to provide punctual information on the presence and degree of human activities, c) to identify zones of increasing and potential conflict between human activities and wildlife, and d) to identify landscape-level patterns of habitat use by large mammal populations. Data from the first phase of this program was analysed and presented during a workshop held in the Nouabale Ndoki National Park with participation of Congolese field survey team leaders (WCS), Nouabale-Ndoki and Lac Tele Community Reserve conservators (MEFE) and the ROC national monitoring agency (CNIAF). The results provide standardised indices that contribute directly to the CARPE State of the Forest Report and to Indicator 2 of the CARPE Strategic Objective.

Success stories

Developing sustainable funding mechanisms for protected areas: ecotourism in the Nouabalé Ndoki National Park

Over the past 15 years, the WCS-Nouabale-Ndoki Project, in collaboration with government partners and the local community, has focused on establishing effective protection and management systems in the Nouabalé-Ndoki National Park, to ensure that the NNNP remains intact, and its wildlife populations free of illegal hunting. As a result the NNNP is home to important populations of large mammals such as western gorillas, forest elephants and chimpanzees which offer considerable potential for the development of ecotourism. Ecotourism is a major potential strategy for harnessing sustainable and long-term funding for the NNNP. Furthermore, with mechanisms in place to ensure an adequate revenue sharing mechanism, it can contribute directly towards local community development and reinforce the link between conservation and local livelihoods.

Initial attempts to develop ecotourism in the NNNP were made between 1999 and 2002, but the program remained small and visitor numbers in any single year did not exceed 30. However, with the launch of the CBFP initiative in 2003, ecotourism development was given new emphasis. Activities focused on gorilla viewing at Mbeli Bai, a large forest clearing in the NNNP. Bais provide a significant opportunity for tourism, primarily due to the excellent viewing conditions for typically elusive forest mammals, such as gorillas and forest elephants. Several independent tour operators visited the NNNP during this time to evaluate the potential for clients, following which a major overhaul of the ecotourism program was scheduled, addressing sustainable accommodation structures, improved logistics, training of dedicated tourism staff and the development of an ecotourism financial plan and revenue sharing strategy.

Informal partnerships were established with three international tour operators, Discovery Initiatives, African Silver Safaris and Kananga, with all three companies promoting transboundary tourism efforts through the incorporation of Dzanga Bai and Bai Hokou in Dzanga-Sangha Reserve, Central African Republic into their programs. They have also assisted in the development of related tourism-industry infrastructure on a national scale, such as hotels and domestic air carriers. Contacts with the private sector were further developed in 2006 when a Cameroonian company, African Travel Management (ATM) organized a familiarization trip for several international tour operators who looked at all aspects of the tourism circuit within the Sangha Trinational countries, including logistics, service and tourism product available. This culminated in a significant increase in visitor numbers in 2006, with a total of eight groups visiting the national park in the first three months (July – September) bringing 78 people and staying a total of 296 visitor nights inside the NNNP and 125 visitor nights in its periphery; these visits generated €44,400 in total



International tourists entering the Nouabale-Ndoki National Park.

I Nichols © NGS

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receipts, including €4,520 for the Congolese Ministry of Forestry Economy and the Environment and a total of €3,214 for the fund for local village development.

Ecotourism development is still in its infancy in the NNNP, although its experiences have paved the way for the development of a national ecotourism strategy and important buy-in with potential private investors. The addition of new activities such as gorilla and chimpanzee trekking in the NNNP, will also contribute significantly to its development. The next twelve months will see a focus on developing formal partnerships between the private, NGO and public sector with the goal of guaranteeing a long-term and dependable revenue flow for the national park and its local community.

Wildlife Management in Logging Concessions

With 45% of tropical forests in central Africa allocated to logging companies (Global Forest Watch 2002), intensive commercial hunting and the breakdown of traditional wildlife management systems have led to the unsustainable harvest of wildlife at a large scale. In northern Congo, the Wildlife Conservation Society (WCS), Government of Congo, and Congolaise Industrielle des Bois (CIB) have been collaborating to prevent the unsustainable harvest of wildlife and poaching of protected species in 1,300,000 hectares of forest. This effort has resulted in a successful wildlife management system that serves as an example of how multi-use landscapes can achieve both wildlife conservation and forestry exploitation while mitigating the loss of endangered species and biodiversity.

Specifically, to address potential over harvesting of wildlife in the CIB logging concessions, PROGEPP worked to establish a restricted access system based on the traditional territories of indigenous Bantu populations and traditional movements and land-use patterns of the indigenous semi-nomadic Mbenzele living within the region. After meetings with villages and Mbenzele camps, a system of hunting zones was delineated based on traditional hunting boundaries and the seasonal forest forays (hunting and gathering) by Mbenzele. The resulting zonage system reinforces the indigenous community's authority over their traditional hunting zones by limiting access of immigrants.

Whereas the zonation system regulates who can hunt and where they can hunt, selective hunting reduces the risk of overexploitation by regulating which species can be hunted and how many animals can be harvested. To promote selective hunting, PROGEPP Ecoguards enforce many Congolese hunting laws, focusing on two principles: 1) no hunting of protected and endangered species; and 2) no hunting with snares – because they are indiscriminant in the prey they trap and kill. Protection of wildlife is accompanied by conservation education in villages and schools to improve the understanding of local people.



Elephant on logging road.
JR Onononga © WCS ▲

| From an institutional perspective, the initiatives taken

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by the project were adopted into Congolese law through the Kabo concession management plan (CIB 2006). In addition, it also contributed to the recent FSC certification of the Kabo concession which both recognizes and requires the company to continue to manage forests and wildlife in a sustainable way. CIB is committed to wildlife and resource management in the rest of its concessions. And, importantly, the Government of Congo is using PROGEPP as a model of management in forestry concessions, and is creating management norms for all of its concessions.

The post-PROGEPP context is very different from the pre-PROGEPP context. The wildlife management system is solidly in place, formally adopted by the government for the Kabo concession (CIB 2006), and understood by all partners and the majority of local people. Hunting camps no longer line the logging roads. And, while poaching still takes place, it has been much reduced compared to the pre-project situation. In fact, recent large mammal surveys conducted in the concessions from suggest that they contain densities and abundances of large mammals (elephants, gorillas, and chimpanzees) roughly equivalent to those in the adjacent Nouabalé-Ndoki National Park and Dzangha-Ndoki National Park (Poulsen *et al.* 2005a, b, c). Whereas seeing elephants along the logging roads was nearly unheard of before the project, elephants now routinely enter the villages of Kabo, Ndoki 2, and have been seen in the fields of Pokola. With conservation success however, comes additional conservation challenges (*see below*).

Mitigating human-elephant conflict in local villages surrounding the Nouabalé Ndoki National Park

A strong conservation presence around the village of Bomassa in the periphery of the NNNP, has resulted in a steady increase in the frequency of elephant visitation to the village since 1998 until the present day. In an attempt to implement a sustainable solution to the problem of elephant crop damage in particular, a system of 'experimental fields' was established in the village in 2000 in order to develop a cost-effective method for conflict mitigation. The project has thus far completed four experimental phases and is presently implementing its recommendations in Bomassa and Bon Coin villages. In the first three phases the basic defense consisted of fencing with audio deterrents in the form of empty tin cans strung up at intervals. The third phase introduced two important new aspects; firstly, heavy wire cable surrounding the fields was smeared with a mixture of grease and hot chili pepper, and secondly, the fields were divided into plots that were assigned to individual families. These families were responsible for tending the plots, maintaining field defenses, and in turn reaping the rewards of successfully harvested crops. The fourth phase introduced the experimental approach pioneered in Zimbabwe by Dr Loki Osbourne (WCS). This approach employed the concept of *passive* and *active* controls against elephant crop damage, which are used cumulatively and in combination and are based largely on the use of chili pepper (*Capsicum* sp.) – both in its capacity as an effective deterrent to elephants, and as a commercial enterprise to improve local livelihoods.



Cultivating chili peppers as an elephant barrier to manioc fields
DB Ekoutouba © WCS

Comparison of different experimental measures (as a measure of productivity of manioc), taken from (Ongongongo *et al.*, 2006)

Year	Area cultivated	Production tubercles	Rate productivity (kg/ha)	of % destruction by elephants
2000	0.6079 ha	0	0	100%
2001	1.3817 ha	2508 kgs	1816 kgs/ha	27.64-64.05%
2002	0.6860 ha	2800 kgs	4082 kgs/ha	13.38%*
2005	0.1440 ha	1395 kgs	9688 kgs/ha	32.15%

* Premature harvest

In general, the use of additive measures in the final phase proved effective in preventing access to the manioc in all but its latest stages of development. A concerted effort to protect the fields during these later stages prior to harvest is needed through vigilance around the field and the consistent burning of chili-bricks for the latter two weeks of maturation. Chili pepper has considerable potential as both an elephant deterrent (it is not consumed by elephants) as well as a commercial enterprise (the plants grow well with minimal labor). However, intensive labor investment is required to make the chili bricks and burn them, which raises some concern as to whether this method is sustainable and whether it will ultimately be adopted by local communities in the medium-term. In order to address these issues, a wildlife management committee was elected and adopted in the village of Bomassa in 2006, which provided a forum with which to address human-elephant conflict issues, amongst others. Participatory measures are now being taken to implement the additive approach (using passive and active measures) in Bomassa and Bon Coin villages, and transferring these measures elsewhere (e.g. Kabo, Makao).

3. CONCLUSIONS

- The PROGEPP experience has not only demonstrated the importance of developing partnerships with the private sector to preserve biodiversity, but also provided development opportunities for local communities that have been living in these areas for several centuries. It is certain that neither wildlife nor local communities would alone be able to withstand the increasingly negative effects of the logging industry; it is therefore the mitigation of the most adverse of these effects which today provides us with our biggest challenge, and promises to see a new approach to conservation and sustainable development in forested areas. The development of the 'PROGEPP approach' has enabled us to set up a new model for conservation in those forested areas which integrate multi-use buffer zones and protected areas, and has provided us with the potential to ensure sustainable management of large tracts of forest that are allocated as forest concessions, but which are also used for subsistence by forest people.
- The adaptive management system implemented in CIB concessions in the buffer zone of the Nouabalé-Ndoki National Park (NNNP) has had a significant effect on the management of the national park. Many of the protection costs that stem from

CIB's activities within their own concessions have now been transferred to the private sector, with a similar arrangement predicted with Rougier in Mokabi. An immediate advantage will be a reduction in the cost of protecting the national park with ecoguards paid for directly by the private sector.

- The results of the first phase of the landscape wildlife monitoring program clearly demonstrate biodiversity conservation success in the TNS ROC segment, and the ultimate conservation benefits of good management planning at the landscape scale. Important populations of large mammals, in particular elephants and great apes were reported in all of the logging concessions currently under improved management. In many of these concessions, density of wildlife exceeded that of the Park, largely attributable to preferred habitats consisting of herbaceous and secondary growth vegetation, proving that sustainable forestry combined with holistic wildlife management programs incorporating strict enforcement of integrally protected species laws, participatory zoning systems for hunting and other forest use and promotion of alternative activities, can yield positive results for both biodiversity and local communities. These lessons will be important in developing similar programs in the Mokabi buffer zone.
- Transboundary collaboration across the Sangha Trinational has been strengthened through partnerships with local authorities as well as partners from both Cameroon and Central African Republic. Mitigating cross-border threats has benefited considerably from cooperation between the three states. Furthermore, the promotion of a Trinational ecotourism package has generated significant interest from the private sector with the potential for new private sector partnerships towards sustainable financing of protected areas.
- The CARPE monitoring and work planning tools proved helpful in performance monitoring of CARPE objectives and in land-use planning and implementation activities in the field. Following an initial period of modification, the current work-planning and reporting system is easy to monitor and manage at the site-level. The zoning system, whilst commendable in its attempt to quantify the cost of land use planning and management by zone type and surface area, does not however adequately reflect the reality of the situation in the TNS-ROC. In the TNS ROC segment for example, all community-based natural resource management planning is done within the context of extractive resource use macro-zones (i.e. forestry concessions) and thus the macro-zoning plan cannot simply be divided into the three land-use types given without completely omitting all CBNRMs. Some flexibility in the matrix thus needs to be enabled to recognize the reality of the different land-use zoning systems (and land ownership laws) that are being implemented. We distinguished our community management planning activities as CBNRM zones regardless, albeit that these zone surface areas do not contribute to the total landscape hectareage and are superimposed on the timber concession zones.

4. LESSONS LEARNED

- The importance in bringing together a diverse group of landscape partners, including national governments, local communities, international and national

NGOs, private sector and independent technical experts in implementing a participatory approach to biodiversity conservation at the landscape scale

- The utility of a stepwise and information-based approach to land-use planning and adaptive management at the landscape-scale
- The ability of the CARPE program to leverage additional funds for associated activities.
- The capacity of the CBFP to provide considerable leverage at the political level – most notably through COMIFAC but also through national governments on contentious environmental policy issues
- The contribution of the CARPE program to standardization of reporting indicators and biodiversity indicators across the Congo Basin, most notably through the State of the Forest Report

5. RECOMMENDATIONS

The Nouabale-Ndoki National Park and surrounding buffer zone is one of the most advanced landscape sectors in the Congo Basin under the CARPE initiative. Continued high level US Government political engagement along with other CBFP partners will be necessary to safe guard the progress in this area and engage with the Government Congo at the highest levels. CBFP partners, particularly the US, EU, and France should work to develop a high level conservation and environment constituency within the Government of Congo. Some of the serious threats to conservation and the long term protection of the Nouabale-Ndoki National Park will need to be addressed through such channels. Significant progress has been made but support networks must be developed at the highest levels in order for these investments to be secured over the long term.

6. Annexes

- a) Please refer to the [TNS - ROC, WCS, FY06, Equipmt-DisposalLetter](#) for the list of equipment

Annex II – disposal plan for items in Annex I above

- b) Please refer to the [TNS - ROC, WCS, FY06, Equipmt-DisposalLetter](#) for the disposal plan

Annex III – GIS files of landscape zones and limits

These shape files will be sent directly to Jackie Doremus as requested.