Formulaire de demande de Co-financement

A renvoyer à l'adresse ppecf.comifac@gmail.com

à travers la KFW
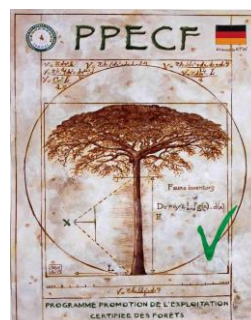
PARTIE I

1. COORDONNEES DU CANDIDAT

Nom de l'organisation / société	**SMART Partnership via Wildlife Conservation Society**
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2. TITRE DE L'INTERVENTION PROPOSÉE

SMART Major Platform Upgrade including Advance AI Analyses Concept

3. STATUT INSTITUTIONNEL ET JURIDIQUE DU CANDIDAT

Wildlife Conservation Society

The Wildlife Conservation Society (WCS) is a US nonprofit, tax-exempt, private organization established in 1895 that saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature. With long-term commitments in dozens of landscapes, presence in nearly 60 countries, and experience helping to establish and manage 245 protected areas across the globe, WCS has amassed the biological knowledge, cultural understanding, and partnerships to ensure that vibrant, wild places and wildlife thrive alongside local communities. Working with local communities and organizations, that knowledge is applied to address threats to species, habitats, and ecosystem services, and issues critical to improving the quality of life of local people whose livelihoods often depend on natural resources.

SMART Partnership

The Spatial Monitoring and Reporting Tool (SMART) was developed by the SMART Partnership, a group of conservation organizations (Frankfurt Zoological Society, Global Wildlife Conservation, North Carolina Zoo, Panthera, Peace Parks Foundation, Wildlife Conservation Society, Wildlife Protection Solutions, World Wildlife Fund, and the Zoological Society of London) whose mission is to conserve biodiversity, reduce the impacts of illegal extraction and trade of natural resources, strengthen law enforcement related to biodiversity conservation, and enhance overall

management of conservation areas. SMART is now the global leading tool for wildlife law enforcement and protected area monitoring and has been implemented in more than 600 sites in 55 countries, with a national governmental mandate for adoption in 12 countries as well.

4. **EMPLACEMENT GÉOGRAPHIQUE DE L'INTERVENTION**

PAYS	RÉGION / PROVINCE	NOM UFA /UGF (pour les concessionnaires)

5. **DATES PRÉVISIONNELLES, DURÉE, BUDGET, FINANCEMENT DEMANDE**

Date début Date fin	du 01 / 10 / 2018 au 31 / 12 / 2019
Durée	14 months
Budget estimé	285.200 euros
Financement demandé	199.150 euros

6. RÉSUMÉ DU PROJET (une page maximum)

Protected areas are the cornerstone of biodiversity conservation, but only 24% of protected areas globally have sound management. In many countries, the capacity to effectively protect vast protected area networks is far beyond the existing resources available to protected area management authorities. Consequently, there is a significant opportunity to improve performance of protected areas by optimizing the use of limited resources.

The Spatial Monitoring and Reporting Tool (SMART) is the leading global tool for wildlife law enforcement and protected area monitoring; it has been implemented in more than 600 sites in 55 countries, with a national government mandate in 12 countries. SMART increases the effectiveness of wildlife law enforcement effort by allowing rapid interpretation and automated reporting of standardized data collected on patrol by rangers. With SMART, managers are able to audit how their law enforcement operations are being carried out; assess whether these operations are reducing the frequency, severity, and type of poaching incidents; and measure progress towards predefined wildlife and operational targets.

Access to data is not a solution in itself. Many sites lack the data science and analytical capabilities that are needed for adaptive evaluation and prioritization of patrol effort. The strong foundation provided by SMART, needs to be extended to leverage advances in artificial intelligence and machine learning that can predict where poaching and other illegal activities are most likely to occur. In doing so, we can support more sites to shift from reactive to proactive management, thereby increasing the effectiveness of patrols and law enforcement efforts.

To do so, the SMART Partnership has committed to significant upgrades to the SMART platform and developing a suite of services that use machine learning, AI planning, and behavior modeling to improve the full set of services delivered by SMART including enhancing patrol effectiveness and creating rich visualizations of advanced analysis of SMART data. We propose to deliver on these initiatives in two phases, the first of which we are looking for funding for at this stage.

Phase 1 - Upgrade to SMART 7
The first phase of this project would encompass the upgrade to SMART 7:
- SMART Apps - Generalizing the SMART intelligence functionality we are developing to support a range of other apps for other uses, such as Human Wildlife Conflict, Animal Tracking, and Infrastructure Management
- Critical Platform Enhancements - Making ~20 critical enhancements to the SMART platform to meet user priorities
- Expanded SMART AI Research Scope and SMART AI Prototype Delivery - Extending the work of the AI team further than just patrol route planning (e.g., identifying likely source villages of poachers, identifying fake data, and pattern recognition). This will also involve prototyping the SMART AI functionality to get it into the hands of a broad set of users primarily through SMART Connect

Following the enhancements to the SMART platform, we will deliver a custom onsite SMART training workshop in central Africa. This workshop will apply our proven 'training of trainers' approach, which is interactive, incorporates real-life examples, and includes practical hands-on field exercises on-site. The Training of Trainers workshop would cover the use and application of the SMART platform and new developments in the context of central Africa. The course would include the philosophy of adaptive patrol management and governance and highlight the role that SMART plays in facilitating this; how to use SMART as a tool to support management efforts; the process of implementing SMART at a site (trainings, meetings, logistics, and technical support), and how to adapt the tool to the site-specific needs.

PARTIE II :   L'INTERVENTION

Section 1 :   CONTEXTE

7.   MOTIVATION DE L'INTERVENTION (150 mots maximum)

Good governance of forests and other protected areas is undermined by illegal exploitation of natural resources, creating a major threat to global biodiversity. The crisis is particularly damaging in Central Africa, where illegal offtake is leading to forests and wildlife being harvested at unsustainable rates. In Democratic Republic of Congo, for example, nearly 65 percent of all timber is harvested illegally, while poaching occurs at up to 6x sustainable rates for some species, driving significant population declines and leaving intact forests devoid of wildlife. To counter these illegal activities, countries have set up a range of protected areas. However, the capacity to effectively manage, patrol, and protect these protected areas is extremely resource constrained (e.g., limited staff, infrastructure, resources), putting management agencies at a significant disadvantage when it comes to deterring and capturing perpetrators of illegal activities. Consequently, effective protected area management requires a more targeted and data driven approach, to allocate scarce resources where they have the greatest impact.

8.   CONTEXTE DE L'INTERVENTION (150 mots maximum)

Predicting where illegal activities are likely to occur is vital to protecting forest resources. By leveraging knowledge about where and when illegal timber harvesting or related poaching events have occurred, artificial intelligence and machine learning techniques can predict where the future events are likely to occur. In doing so, we can shift from reactive to proactive protection, thereby increasing the effectiveness of management and law enforcement efforts, and reducing the incidence of illegal exploitation.

Predictive patrol planning (PPP) test cases using machine learning, AI planning, and behavior modeling have been developed and tested in Malaysia, Cambodia, and Uganda. These pilot implementations have demonstrated significant positive results for its application in the field. We aim to build on these positive results to provide managers with better information on where illegal activities are likely to occur, thereby improving not only protection efforts, but also overall governance of their sites.

9.   DÉFINITION DE L'OBJECTIF POURSUIVI (500 mots maximum) (DEFINITION OF OBJECTIVE CONTINUED)

We will develop a predictive patrol planning model that uses machine learning, AI planning, and behavior modeling to leverage patrol efforts, and abiotic and biotic spatial datasets (e.g., hydrology/distance to water, road networks, landcover, topography, fire, deforestation, species distributions, etc.) to predict hotspots of illegal activities, and to develop targeted protection strategies and patrol routes (Fig. 1).

Development will focus on lightweight, efficient functionality that is fully integrated into the SMART platform, relatively easy-to-use for managers, can be operated in connected (leveraging SMART Connect, a cloud-based extension to SMART) and disconnected environments, and facilitates completion of the adaptive management cycle.
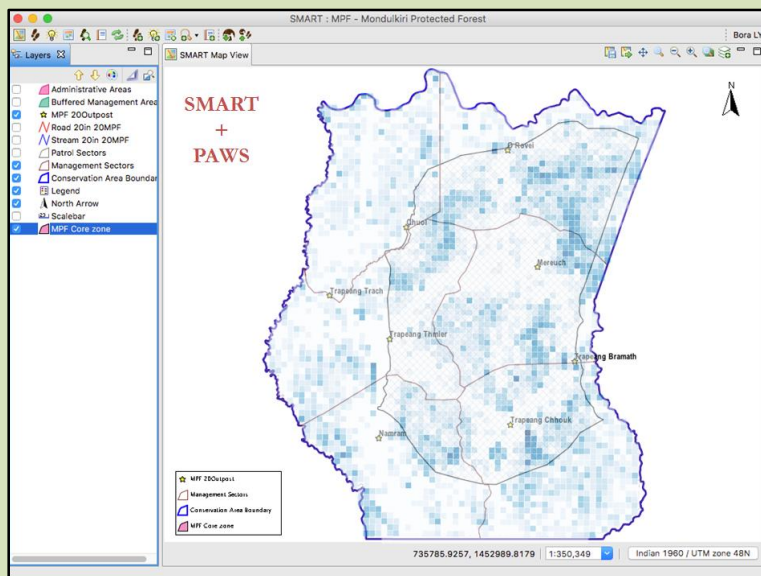
Figure 1: Suggested patrol intensity in Mondulkiri Protected Forest, Cambodia using SMART in concert with PAWS (Protection Assistant for Wildlife Security).

10. BÉNÉFICIAIRES ET PARTIES PRENANTES (400 mots maximum) (Beneficiaries and Stakeholders)

The ultimate goals of this project are to 1) improve governance and management of protected areas, and 2) curb illegal exploitation of forest resources, thereby bolstering forests, wildlife population numbers, and overall biodiversity. Additional direct beneficiaries of this work will be rangers, Protected Area managers, conservation practitioners, environmental wardens, law enforcement agencies, local policy makers, and local community leaders.

Given the limited resources with which to protect vast and porous protected areas, it is critical practitioners are given every advantage possible to not only intervene in illegal activities, but to intelligently predict where illegal activities are likely to occur . By improving the analytical framework which guides their allocation of resources, we aim to lessen the burden of governance and streamline management decision-making processes. Enhanced effectiveness of patrols will also also improve return on investment, thereby providing more impactful results on the ground and making managers' reporting responsibilities significantly easier.

The SMART Partnership also has a robust methodology for scaling its solution that has lead to products such as SMART Law Enforcement Monitoring being deployed at over 600 sites globally. Spanning 5 continents at sites from the Arctic to tropical rainforests and grassland Savannas, these sites demonstrate SMART's scope and adaptability. Powered by a fully customizable data model and localized in 10 different languages SMART has been built to respond to the full breadth of needs across the conservation community. By adhering to SMART's rule of user-driven and -focused development, we will also be building a tool with the potential to benefit the entirety of the SMART community, encompassing thousands of users around the globe.

Using our proven 'training of trainers' approach, the SMART training workshop in central Africa will ensure representatives from selected sites will have the skills to deploy the upgraded version of SMART, and also be able to train others..

Section 2 : **L'INTERVENTION**

11.   QUEL EST LE DEGRÉ D'INSERTION DE L'INTERVENTION DANS UNE DÉMARCHE D'ÉCO CERTIFICATION ? (200 mots maximum). (What is the degree of alignment of the intervention with an eco-certification approach?)

Eco-certification provides environmental standards and a monitoring and verification framework which can support implementation of many national and international frameworks (e.g., REDD+). Implementing SMART, practitioners can: set implementation standards and targets; provide rapid, routine, and quantitative evaluation of conservation efforts; and, ensure good governance and transparency. SMART is also recognized as a global leader in wildlife law enforcement. Thus, by building on the strong foundation for PA management provided by SMART, the integration of advanced patrol planning techniques can allow practitioners to go even further towards meeting their conservation targets.

12. EN QUOI L'INTERVENTION RÉPOND-ELLE AUX OBJECTIFS GÉNÉRAUX DU PPEFC? (200 mots maximum)

Consultez les notes directives pour obtenir des informations sur les domaines thématiques du PPEFC et son cadre logique en annexe IX des conditions particulières

This project falls under the "anti poaching and monitoring of biodiversity" provision of the general PPEFC Intervention, "Improvement of the quality of industrial exploitation."

13. HYPOTHÈSES & RISQUES (200 mots maximum)

Indiquer les mesures d'atténuation des risques.

Software development investments require ongoing funds to be sustained and kept up to date. The improvements to SMART are fully supported by the Partnership and, though our partner contribution model, we have a long history of ensuring investments are sustained in the long run.

Technology is only successfully adopted if there is strong demand from the user based and a mechanism for marketing and supporting adoption. We have already confirmed the strong demand and we have a commitment from the lead organizations within the SMART partnership to support the deployment of the solution at scale.

We also understand that Predictive Patrol Planning will require us to take an evolutionary approach to incorporating source data into our AI model.