

ORANGUTAN CONSERVATION SERVICES PROGRAM
**BEST MANAGEMENT PRACTICES FOR
ORANGUTAN CONSERVATION**

ANNEXES

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BEST MANAGEMENT PRACTICES FOR ORANGUTAN CONSERVATION ANNEXES

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ANNEX I. GENERAL GUIDE TO DEVELOPING CONSERVATION MANAGEMENT PLANS

INTRODUCTION

This guide to developing a conservation management plan is based on an adaptation of the approach formulated by the Conservation Measure Partnership in 2007, in their document “Open standards for the practice of conservation.” This partnership between the African Wildlife Foundation, The Nature Conservancy, the Wildlife Conservation Society, and the World Wide Fund for Nature seeks better ways to design, manage, and measure the impacts of their conservation actions.

Some of the general principles underlying the development of conservation management plans are as follows:

- **Stakeholder involvement:** One of the first requirements is to define internal and external stakeholders. Internal stakeholders include NGOs and the concessionaire’s staff. External stakeholders include community members, government personnel, donor agencies, international community members, and other individuals and institutions that have some interest in the concession.
- **An objective approach:** This should be based on the selection of conservation targets (objectives) that are representative of overall biological diversity.
- **Address major threats:** Identify major threats and their root causes and then take actions to reduce, mitigate or eliminate the threat.
- **Community-based natural resources management:** Given the importance of involving stakeholders that are most affected by the operations of concessionaires, it is essential to involve members of the local communities in implementing the plan.
- **Precautionary approach:** The precautionary approach advocates that forest managers avoid actions that may lead to irreversible change in ecosystem function. Alternative management strategies to be considered (including the alternative of no logging, extraction, or conversion) should identify the silvi-cultural, mining or conversion actions which are least likely to impair the viability of species or ecosystems.
- **Adaptive management:** Adaptive management advocates that when a new management approach is implemented, it is done in a structured and scientific manner. Adaptive management is much more than learning by trial and error. It refers to the structured process of adjusting management in response to implementation of a monitoring program to test stated hypotheses, and revision of management based on monitoring results.

These last two approaches can be complementary. Putting primacy on prudence and caution in dealing with uncertainty, logging, mining or conversion should only proceed when forest managers are confident that severe negative effects will not occur. Once this condition has been satisfied, the management actions that proceed should be guided by the processes of adaptive management. By using such an integrated approach, severe negative consequences can be avoided and opportunities to learn and improve management in the face of uncertainty will be embraced.

SUMMARY OF THE PROCESS

The development of a conservation management plan (CMP or Plan) is an adaptive process. Conservation targets, threats and interventions are identified by local stakeholders, ideally with expert advice, and are adapted to the local context. The steps required in the process are presented in Figure I.

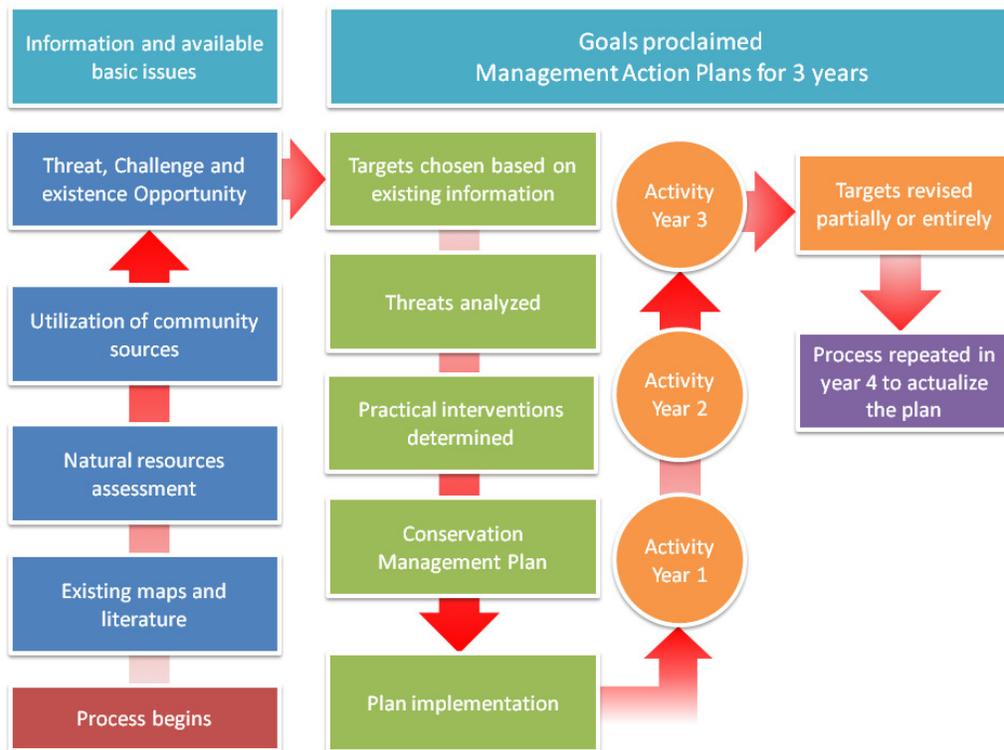


Figure I. Main steps in the development of a conservation management plan

REVIEW OF CURRENT LITERATURE

One of the first steps in conservation management planning is a literature review. This also includes the collection of all geographic information system (GIS) data that can be used to develop a model for assessing priority areas for conservation.

IDENTIFICATION OF CONSERVATION TARGETS

Conservation targets are specific species, ecological systems/habitats or ecological processes that are chosen to represent and encompass the full suite of biodiversity in a project area. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. In theory, a complete suite of targets should ensure the conservation of all native biodiversity within the project site. Selection of conservation targets typically requires input from experts and analysis of spatial data. More detailed status assessments involve specifying key ecological attributes of each target.

Box 1. Potential Conservation Targets

- Terrestrial ecology systems and collection of adequate proxies.
- Aquatic ecology systems and collection of adequate proxies.
- Species targets include:
 - Species listed on the IUCN Red List;
 - Species protected by government regulation;
 - Endemic species;
 - Species that have high cultural value;
 - High economic value species;
 - Charismatic species;
 - Migratory species.
- Others include:
 - Aggregated species or habitats;
 - Biodiversity hotspots.

Modified from TNC (2000).

IDENTIFICATION AND RANKING OF DIRECT THREATS TO EACH TARGET

Direct (proximate) threats are primarily *human activities* that immediately affect a target (e.g., unsustainable fishing, hunting, logging, road construction, pollution, introduction of exotic invasive species), but they can also be *natural phenomena* altered by human activities (e.g., increase in water temperature caused by deforestation) or *natural phenomena whose impact is increased* by other human activities. Other threats are indirect (ultimate). An example would be poverty that results in local villagers threatening a conservation target. This process focuses on direct and not indirect threats.

As part of the analysis, threats are ranked in order to concentrate on activities that abate or eliminate the worst threats to each target (see Figure 2).

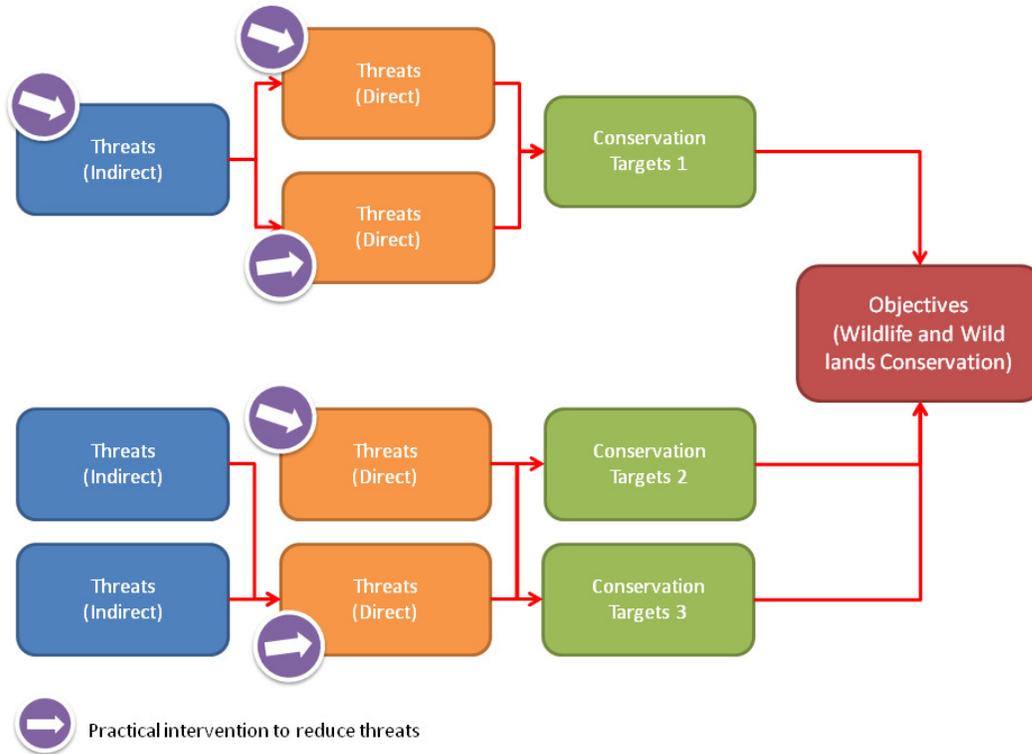


Figure 2. This diagram shows several direct and indirect threats to three conservation targets. The arrows represent possible interventions to abate or eliminate these threats. There are no interventions for some threats – perhaps because it is not feasible (or practical) to attempt such interventions.

FEASIBILITY ANALYSIS

For each potential intervention intended to mitigate or eliminate threats to conservation targets, an analysis determines the feasibility of implementation. Many factors can affect the feasibility of interventions. These factors include, among others: excessive cost, lack of stakeholder support, and inability to effectively reduce the threat. Only interventions that are practical, feasible, and agreed upon are proposed in the plan. The interventions or activities also need to be achievable during the period covered by the plan (recommended at three years).

IDENTIFICATION OF CONSERVATION AREAS FOR PRIORITY INTERVENTIONS

There are several steps to identify priority areas for conservation interventions. These are:

- i) Identify areas of high conservation value;
- ii) Identify areas of high threats to conservation targets; and

- iii) Merge areas i) and ii) to identify areas that are both of high conservation value and highly threatened. Such areas should be the focus for conservation interventions.

The general Geographic Information System (GIS) tool to identify i) and ii) above is referred to as the Multiple Criteria Decision Analysis System (MCDAS) approach, whereby several important criteria that reflect separately conservation value and threat level are collected for the concession and surrounding areas.

Common criteria used in MCDAS to identify areas of high conservation value:

- Important areas for watershed integrity.
- Important habitat for key species such as orangutans and hornbills.
- Areas where there is a conjunction of various types of habitat, physiography (soil, geology), and ecosystems.
- Important areas for habitat connectivity.

Common criteria used in MCDAS to identify highly threatened areas:

- Areas close to roads, villages, and rivers (where these are major transport systems, such as in Kalimantan) that increase accessibility.
- Proximity to disturbed areas such as plantations or converted lands.
- Fire history and fire ecology (e.g. peat lands are extremely vulnerable to fires when dry, and fires may spread long distances underground).

STRUCTURE OF CONSERVATION MANAGEMENT PLAN

The structure of the Conservation Management Plan is as follows:

Vision

The vision developed by stakeholders represents ideal long-term outcomes that seek to bring together (a) good achievements in the conservation of biological diversity in the concession and its greater landscape with (b) the concessionaire's need to achieve its business goals while (c) adhering to the principles of sustainable use of natural resources within the concession and (d) contributing to the mitigation of climate change. The vision covers a far longer time span than the period covered by the Plan, and could be seen as an ultimate development goal.

Unlike this vision statement, the goals, objectives, sub-objectives, and activities are not general statements in this Plan. Rather, they are developed individually for each conservation target.

Goals

Goals correspond to the positive impact of the plan. Each goal corresponds to a specific conservation target and could be seen as a long-term objective. These goals should be reviewed after the initial (three-year) period.

Objectives

Objectives are more specific than goals. They focus on some attributes of the conservation targets, for example, habitat and population viability.

Sub-objectives

Each sub-objective addresses a threat or group of threats. In order to avoid redundancy, each threat is addressed once.

Activities

For each sub-objective, a set of conservation interventions or activities is proposed. These activities address the different threats and should be seen as a first attempt by the company to achieve conservation measures. The list of activities will not be exhaustive. After the three-year period, an assessment of the achievements of the company should be done and decisions will be taken regarding the continuation or modification of current activities, or new activities proposed. The next period will be an opportunity to add more activities or to scale current ones up for better effectiveness and results.

Monitoring and evaluation (see Annex 4)

Each development of goals, objectives, sub-objectives and activities is followed by a monitoring and evaluation (M&E) plan that establishes indicators of success to track the progress of conservation interventions.

For each activity, the stakeholders should identify outputs, indicators, means of verification, and actors.

Timeline

The Conservation Management Plan should include a timeline showing the calendar of activities.

FURTHER READING

USAID /ARD (2005). *Biodiversity Conservation: a guide for USAID staff and partners, September 2005* (USAID & ARD, BIOFOR).

ANNEX 2. GENERAL GUIDE TO INCORPORATING CONSERVATION MEASURES IN STANDARD OPERATING PROCEDURES

INTRODUCTION

A standard operating procedure (SOP) is a procedure agreed to by a company and formalized in a set of instructions on how to handle specific operational activities. Including conservation measures in a company's SOPs is essential to ensuring that activities are performed consistently over time. SOPs can also help create companywide support for implementation of conservation management plans by all staff and visitors. Using SOPs to accomplish these objectives has a number of advantages: they standardize the approach of individuals within the company to specific conservation procedures; they define the specific tasks of an employee in relation to conservation measures; they improve the speed at which an individual is integrated into a company during induction training; and they increase the speed of decision making in key areas – especially in planning for environmental contingencies such as fire, floods, illegal logging, encroachment, hunting, and the rescue and removal of orangutans. SOPs can also serve to disseminate best management practices for orangutan conservation.

Establishing SOPs also makes it easier to cross-reference conservation management procedures between different companies (and concessions) under the umbrella company, and to achieve consistency between different companies and groups of companies in their environmental management implementation. This can lead to more prudent use of resources by a group of companies when implementing conservation interventions.

SOPs can be very useful in demonstrating to other stakeholders that a company has an established approach to conservation, and in increasing the transparency of its actions for NGOs, local communities and government. This is of immense value when applying restrictions to individuals and groups operating illegally, for example, trespassing on company roads and extracting resources from a concession. Increased transparency within a company also helps to engender shared conservation values. In disputes over implementation of conservation interventions, SOPs inform external investigators that correct conservation procedures have been followed and proper records maintained.

When key conservation principles (such as those listed below) are incorporated into standard operating procedures, they will lead to greater understanding among other company staff of the overall implementation of conservation management planning in a concession.

SOPs should benefit employees by improving and simplifying performance in conservation activities. They should provide an inclusive, rather than exclusive, framework for decisions; be accessible to all

employees; lead to specific and simple actions that can be easily documented; be used by senior management in conservation decision making and then communicated to other staff.

SOPs should not be excessively restrictive, such that they reduce individual liberty and individual approaches to work. They should not require excessive paperwork. And they should not deal with minor aspects of work, such that they create a completely controlled environment for conservation implementation.

The monitoring & evaluation (M&E) reviews of the conservation management plan will assist a company select which of the SOPs mentioned below are required. These regular reviews should critically assess the performance of the Plan against targets, areas of significant difference between key performance indicators, and benchmarks. (See Annex 4 for more on M&E systems.) This approach ensures that a company introduces only those SOPs that are essential in the short-term, without creating overload. Further SOPs can be introduced when their benefits become apparent to all stakeholders.

KEY PRINCIPLES TO CONSIDER IN DEVELOPING SOPS FOR CONSERVATION PURPOSES

Performance indicators in conservation management plans

When possible, hire an independent assessor to monitor and evaluate a company's performance in implementing its conservation management plan.

Dealing with adjacent local communities and enclave communities

- Provide education and instructions on appropriate waste disposal and simple septic systems.
- Minimize access roads from villages to other parts of a concession.
- If there is a need for sustainable alternative economic development, provide training and instruction.

Outsourcing conservation activities (surveys, intervention activities)

- Ensure contractors and grantees are familiar with the company's conservation management plan and SOPs, and include compliance with these documents in contractual agreements.
- When possible, employ expert consultants to survey orangutan and key conservation targets to identify their important habitats and contribute to the conservation management plan.

Safety and security

Develop a strategic plan to reduce human-orangutan (and other wildlife) conflict and to determine how to address any conflicts that arise. (This should be done in conjunction with the provincial natural resources agency, BKSDA, and national park management.)

Personnel policy and employee development

Arrange for all concession staff to receive education and training from an outreach/education officer in the areas detailed in the Recruitment section below.

Hiring & coordination

- Hire preferentially from local communities to reduce the incentive for secondary immigration. Secondary immigration can increase the pressure on orangutans, increase human-orangutan conflict, and lead to the extraction of other natural resources in the concession.
- Clearly define the role of all parties involved in wildlife issues so as to ensure that conservation interventions are effective.

Disciplinary code and grievance procedure

Specify disciplinary action for breaches of the SOPs for conservation issues.

Recruitment

- Establish a key environmental officer who will be responsible for the development and implementation of the conservation management plan, and the design and implementation of an adaptive management M&E plan.
- Consider employing an education/outreach officer to educate staff, contractors and local villagers on the need for the conservation management plan, and its implications for them. This may require specific training in areas such as hydrological systems and their management, pollution control, simple septic and human waste disposal systems, fire management, biological diversity values, the ecological needs of key animal and plant species in the area, and the advantages of habitat rehabilitation and restoration.

Standardization of key operational activities

- Provide guidelines to tree fellers to improve biodiversity conservation during operations.
- Reduce skidding damage through closer supervision and the adoption of Reduced Impact Logging (RIL) guidelines.
- Follow RIL prescriptions for slopes with gradients above 40%.
- Prohibit the use of fire by staff.
- Minimize use of petroleum products and other chemicals near bodies of water.
- Minimize road building near habitats that are priority conservation areas.
- Minimize secondary roads.
- Use old roads rather than build new ones.
- Minimize threats to bodies of water and edge vegetation arising from forest conversion, illegal logging, road building, and mining (particularly, avoid dumping of tailings or locating holding ponds near water bodies).

- Prohibit hunting, de-barking of non-exploited trees, and cutting down of trees to gather honey.
- Forbid staff to purchase in local markets meat obtained from hunting in forests (bush meat).
- Build latrines with simple septic systems and waste disposal units for all temporary and permanent forest camps.
- Require staff to report all sightings of identifiable threatened animals and plants to the key conservation officer.

Management information systems

Establish a conservation database to store (a) all information on wildlife reported by staff, contractors, grantees and consultants, and (b) the results of the M&E assessments of implementation of the conservation management plan.

Project management

Involve the key environmental officer in all strategic planning decisions concerning the management of natural resources (including wildlife) within the concession and concerning nearby local communities.

ANNEX 3. GENERAL GUIDE TO DEVELOPMENT OF COMMUNITY EDUCATION AND COMMUNITY ENGAGEMENT IN CONSERVATION ACTIVITIES

INTRODUCTION

Community engagement can sometimes be viewed as a public relations exercise to inform community members of education initiatives. More broadly, it may consist of deliberate efforts to mobilize the members of each stakeholder group around a common challenge. This guide is intended to help concessionaires, schools and district leaders think more purposefully about the latter definition. In particular, they should consider the strategic role of community engagement in ensuring that all students are prepared for college, work, and citizenship with an increased understanding of their responsibilities towards the environment and their role as potential forest stewards and conservers of orangutans, especially in and around natural resource concessions.

Consequently, this guide provides:

- An exploration of the contextual importance of community engagement.
- A framework and guiding questions to help leaders identify appropriate purposes of community engagement and determine the most effective processes to achieve those purposes.
- Proposed tools for community engagement, and the resources required.

COMMUNITY ENGAGEMENT

Community consultation is a vital component of any community engagement strategy. There are four levels of consultation that contribute to the community engagement process:

- Information sharing.
- Response seeking.
- Community input into planning.
- Cooperative decision making and planning.

Effective community consultation is about partnerships. Any community consultation process should be underpinned by clear mutual understanding of issues, objectives, purposes and expectations. This requires a concise definition of the subject of the consultation, the reasons for consultation, and the objectives.

The agenda and process should be responsive and flexible, and any constraints should be highlighted from the outset. Constraints should be supported by clear, valid reasons.

Effective consultation does not always lead to agreement. However, it should result in a better understanding of the position of the participants and the rationale for the final decision.

COMMUNITY ENGAGEMENT PLANNING CHECKLIST

This section provides a checklist of questions to be addressed during the engagement planning stage. Community engagement on environmental matters will generally include most elements of the following checklist:

Identify the issue

- What requires consultation?
- What needs to be discussed and decided?
- Are any contentious issues anticipated?
- What are the genuinely non-negotiable issues?

Define objectives

- What are the objectives of the consultation?
- What information is being sought from the consultation?
- What are the limits of the consultation?
- Is consensual decision making a goal?

Identify participants

- Who are the stakeholders?
- Who should be consulted?
- Do specific population groups need to be targeted (e.g., community decision makers, students, the elderly, unemployed, hunters)?

Choose techniques

- What techniques should be used?
- Are the chosen techniques most appropriate to the objectives and the participants?

- Have non-traditional techniques been considered?

Delivery of techniques

- What background information, data, maps and research do participants need?
- What formats are appropriate for conveying information to participants (e.g., pamphlets, letters, slide presentations, media stories, advertisements)?
- Is the written information concise, consistent and in appropriate formats?
- Have jargon and technical terms been minimized, and fully explained where necessary?

Quality control

- Do those leading the consultation process have effective communication, negotiation and analytical skills?
- Would using a facilitator assist in the consultation process?
- What process will be followed in the event of conflict?
- What level of consultation is required if a major issue arises during the engagement process?

Maximize the ability of stakeholders to participate

- What are the possible constraints to participation and the means to overcome them?
- What are the most appropriate methods to invite participation?
- Have special interest groups been considered?
- Has support and advice been obtained from community leaders or organizations on protocols for consulting with the local communities?

Formulate the timetable

- Is the consultation a one-off process, or is it ongoing?
- Is the timetable realistic?
- What are the time constraints?

Estimate the resources

- What resources and staff are required?
- Is there a need for staff training?
- Is there a need for external personnel (e.g., a facilitator or mediator)?
- Is there a need to hire a venue, organize catering, etc.?
- Is there an opportunity to collaborate with other stakeholders?

Outcomes and implementation

- Are the outcomes clearly defined?
- How will decisions reached through consultation be implemented?

- What are the approval processes?

Feedback

- How will the outcomes of the consultation be conveyed to participants?
- How will the outcomes be conveyed, where relevant, to the company, local government, and relevant national departments (forestry, agriculture and mining)?
- How will the outcomes be conveyed to other stakeholders and the general community?

Evaluation

- Has an evaluation process been developed?
- How will a successful consultation process be defined and measured?

COMMUNITY ENGAGEMENT STRATEGY

Before considering a community engagement strategy, the company needs to decide what it wants from the process. If the purpose is to provide information, report back or share information on a policy or service delivery initiative, then the company does not need to consult. It simply needs to plan an information program aimed at informing relevant community groups or stakeholders.

However, the company does need to plan for consultation, as well as clarifying openly and transparently which aspects of the issue can and cannot be negotiated or influenced by the consultation, if it is:

- Seeking community involvement in planning and designing.
- Seeking community feedback on current policy or future levels of service.
- Obtaining information to make informed decisions about an emergency services initiative that affects the community.

To ensure effective and inclusive consultation, the following points need to be considered:

- The people who hold the consultation should be fair and impartial.
- The facilitators of workshops and public forums should be suitably trained.
- The venues and times for the consultation should allow maximum participation, taking into account issues such as location and access.

A reporting process should be in place to ensure relevant company managers and communication officers are briefed on issues as they arise throughout the engagement process.

COMMUNITY ENGAGEMENT STRATEGY OUTLINE

Executive Summary

Detail the objectives of the community engagement strategy.

Background

- Provide any relevant information regarding service delivery in the area affected by the community engagement strategy.
- Outline any previous consultation undertaken by the company in the area.
- Outline any recent changes to service delivery in the area.
- Provide details of any previous formal communication between the community to be affected and relevant local and central government departments.

Issues

- Detail any relevant community perceptions regarding service delivery in the area affected by the community engagement strategy.
- Outline any related issues expected to be raised by staff and volunteers.
- Provide details of local political support for the community engagement proposal.
- Detail what conflict, if any, is anticipated.

Stakeholders

Provide a list of key stakeholders that should be consulted during the community engagement process.

Engagement methods

- Outline the planned methods of community engagement.
- Ensure the method chosen matches the nature of the issue and stakeholder requirements.

Summary

Provide a short summary of the community engagement strategy, implementation timeframe, and evaluation process.

FURTHER READING

Evans, K. et al. (2006). *Guide to Participatory Tools for Forest Communities*. Center for International Forestry Research. (Intiprima, Jakarta)

Garnier, J. et al. (2010). *Small Schools Project: strategic community engagement- a resource guide* (Version 1.0)(Bill and Melinda Gates Foundation).

ANNEX 4: GENERAL GUIDE TO DEVELOPMENT OF MONITORING & EVALUATION (M&E) SYSTEMS

INTRODUCTION

Importance to conservation management

Good conservation management is strongly linked to well designed M&E systems, which help demonstrate both accountability and impact of conservation interventions, and are essential for determining how well a conservation management plan is working. It can also serve as an early warning system to identify potential problems, and the solutions required to rectify such problems, resulting in improved decision making.

Pre-planning M&E

Before developing an M&E process for a conservation management plan, a company should consider:

- Whether the Plan has clear goals and objectives.
- Whether M&E is an integral part of the Plan, including the planning, implementation and review stages.
- Whether the Plan includes a process for correcting problems during implementation and after completion of the Plan.
- Whether the Plan distinguishes between outputs (level of activity) and outcomes (results of that activity). Outcomes are harder to record accurately as they are longer-term, but they should be captured whenever possible.

Where possible, M&E should focus on measurable (quantifiable) and not abstract outcomes. However, when dealing with social systems, it is preferable to assess people's actual behavior, perceptions, and attitudes.

M&E APPROACHES

There are four main approaches in use to assess performance of a conservation management plan:

- I. **Measuring effectiveness.** Evaluations for measuring effectiveness are necessarily linked to discrete interventions employed by specific actors. Evaluation for measurement effectiveness can be divided into two broad categories: impact assessment and adaptive management. *Impact assessments* are generally one-time assessments undertaken upon completion of a project to determine how well the conservation plan achieved the conservation targets. Impact assessments can also include predictive assessments that evaluate the

appropriateness of a potential intervention. *Adaptive management* is an iterative process that involves the integration of project design, management and monitoring to systematically examine interventions in order to adapt and learn. Adaptive management differs from impact assessments in that activities are adapted as needed to achieve conservation goals and objectives.

2. **Status assessment.** A status assessment evaluates the condition or status of a conservation target (species, population, or ecosystem), generally irrespective of specific interventions designed to achieve the target. A status assessment shows what has been achieved at a particular point in time. It employs conceptual frameworks depicting generalized cause-and-effect relationships that influence conservation targets.
3. **Basic research.** Basic research involves the gathering or generation of knowledge related to the environment of a concession in order to understand it better, and then develop and improve the conservation management plan.
4. **Accounting and certification.** This evaluation determines whether a company is fulfilling its obligations to donors, the public, the government, or an enforcement or certification entity. Standards for accounting compliance are generally set externally, while certification involves self-imposed standards and regulations that are usually accompanied by economic or social incentives.

INDICATORS OF CONSERVATION SUCCESS

Conservation organizations have traditionally focused their M&E efforts on identifying indicators of conservation impact (approach number 1 above). These approaches tend to be indicator-driven, with little attention to designing M&E systems that measure outcomes associated with particular interventions. This may be appropriate at the policy level or for providing baseline information, but it does not allow the tracking of causality associated with site-level interventions.

There has recently been a movement towards more comprehensive approaches to M&E that emphasize measuring effectiveness, learning, adapting, and improving programs. In the case of protected area management, this management effectiveness approach is gaining significant ground.

While indicators alone are insufficient to reveal the effectiveness of conservation interventions, M&E based on the status assessment approach requires a clear understanding of ecological function and causality, which is not currently available in most concessions. For this reason, the more traditional approach of measuring effectiveness is recommended for monitoring the

Box 2: Guide to selection of indicators to measure performance of implementation of a concession conservation management plan

Most large conservation organizations have a set of criteria to assist them develop performance indicators. There are commonalities in many of these indicators, which are summarized below:

- Related to stated objectives of the Plan (*specific*).
- Based on accurate and reliable data sources and methods (*measurable*)
- Credible and collectable at reasonable cost (*attainable*)
- Acceptable to all organizational levels of a company (*relevant*)
- Able to be integrated with existing information systems (*trackable*)

performance of conservation management plans in concessions.

PLANNING M&E

In designing M&E, a company should answer the following basic questions:

- How will we know if you have achieved the goals and objectives of the company's conservation management plan?
- What information will help us determine the success of the Plan?
- When should this information be collected and assessed?
- How will we gather this information?
- What have been the strengths and weaknesses of the Plan?
- Who will be interested in the evaluation of the Plan?
- How can the Plan be improved?

M&E IMPLEMENTATION

In collaboration with several types of natural resource concessionaire, stakeholders recently developed M&E plans for a conservation management action plan. The following table illustrates the M&E structure, summarizing the performance indicators for objectives (output indicators) and activities (process indicators) for orangutans.

Monitoring

Keep the M&E System Simple, Affordable, and Feasible

- Be clear about the purpose and scope of the M&E system.
- Design your system to meet, not exceed, the level of sophistication necessary.
- Use indicators that are simple to measure and interpret.

Make the M&E System Relevant

- Work with project staff, management, and stakeholders to develop evaluation questions that are relevant and practical.
- Use a broad set of indicators that are understandable to the people making policy and management decisions.
- Choose indicators that encourage the right action and are functional, clear, compelling, and understandable.

Component	Description	Output	Indicator	Means of verification	Actors	Threat ranking (1 = low, 4 = High)
Objective I	Ensure protection of orangutans & their habitats in the concession	Habitat for orangutans maintained or increased after 3 years	Change in area of habitat of orangutans in Q1 compared to Q12	Maps	Company	1
Sub – objective I.1	Identify areas of high conservation value for target species					
Activity I.1.1	Set up a multi-stakeholder committee to assist/ implement this CMP	Committee effectively functioning		Minutes of meetings	Company, local communities, local authorities	
Activity I.1.2	Identify and map areas of high conservation value for orangutans	All areas important for orangutans identified and mapped		Maps	Company	1
Activity I.1.4	Develop a list and map important food trees for orangutans	Food trees for orangutans identified in concession, marked and mapped within 3 years		Maps and monitoring report of food trees	Company	2
Activity I.1.5	Identify & protect vine species used by people and orangutans	Vines in high conservation value areas mapped		Survey report	Company	2
Activity I.1.6	Set aside sufficient areas for conservation, including riparian buffers, in the concession (as guided by activities I.1.2-1.1.5)	Clear internal regulations for buffer zones including riparian buffers. These should equal or exceed government regulations		Internal regulations	Company	2
Activity I.1.7	Design and protect linkage habitats and biological corridors	Biological corridors identified and mapped		Maps	Company	2
Activity I.1.8	Implement a program to monitor numbers of orangutans	Improved knowledge of distribution & abundance of orangutans in the concession		Survey reports		

Analysis

Keep Your Information System Manageable

- Process and analyze information at the field level – do not merely record data.
- Synthesize large amounts of information into simple principles that encapsulate the lessons learned.
- Make sure your data supports your conclusions.

Be Comprehensive

- Collect monitoring information on inputs, outputs, outcomes, and impacts.
- Analyze both successes and failures to determine the reasons behind them.
- Document and communicate key lessons.
- Assess not only whether you have been effective but also whether alternative approaches might be more effective.

Communication

Consider the Audience

- Consult and involve stakeholders throughout the evaluation process, including when communicating findings.
- Communicate findings in a form appropriate to the needs of interested parties. Information should be clear and understandable. It should stimulate, inform and support learning processes.
- Present recommendations and criticisms in a culturally appropriate manner.

Use/Adaptation

Link Assessments to Decision Making

- Specify early on in your work plan how you will use evaluation results.
- Provide clear recommendations for improving management performance.
- Clearly identify who is responsible for following up on recommendations.

Create a Learning Environment

- Embrace error as a way to learn and change.
- Design incentive structures that tolerate experimentation and innovation in respect of risk and reward.
- Systematically document the process your team has gone through, and the results achieved.

FURTHER READING

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ANNEX 5. KEY ECOLOGICAL RESOURCES REQUIRED BY ORANGUTANS

GENERAL ECOLOGY

Orangutans are particularly susceptible to extinction because they are very slow breeders. A female will produce only three to five young during a life that can last over 50 years. Consequently, poaching, habitat destruction and any other disturbance that interrupts breeding will almost certainly cause wild orangutan populations to decline drastically. Orangutans will only be able to survive in the wild if they are properly managed in protected areas, and if natural resource concessionaires take an active role in their conservation. An approach that examines the extent to which orangutans in concessions utilize and require resources from the surrounding landscape is also needed. Such an approach will need to involve many stakeholders because these are animals that need relatively large and connected forest habitats and a year-round supply of fruits and other key foods in order to survive.

Orangutans prefer large connected forest habitats that allow continuous movement among local populations, guaranteeing a diverse gene pool that avoids inbreeding. The lowland forests of Sumatra and Borneo are vital because orangutans are rarely found at elevations above a thousand meters, where their favorite food – fruits, especially figs, durians, rambutan, mangoes, jackfruit and many lesser-known forest fruits (see Morrogh-Bernard H.C. *et al.*, 2008) – is much harder to find. They also eat the leaves, seeds and bark of various tree species, a range of invertebrates such as termites, and insect products such as honey. In response to seasonal variations in the availability of these foods, orangutans will change either their diet or their location, looking for better foods elsewhere.

Where the forest has become fragmented, tree connections need to be re-established between forest areas. This is especially true in Sumatra, where orangutans are entirely arboreal (probably because of the presence of large ground-dwelling predators such as tigers, which patrol the forest floor). Since Borneo contains fewer large predators, male orangutans will occasionally travel and feed on the ground, while the smaller females generally remain in the trees.

To understand the specific needs of orangutans in the wild, we must first understand their requirements for food, space and shelter. In their natural forest habitats, orangutans generally confine their activities to a specific area (or home range) that they utilize for long periods. They frequently remain in such areas even when parts of it are damaged by forestry or land conversion activities. The extent of their home range depends on both the type of forest and the availability of food.

Orangutans in Sumatran swamp forests have the largest home ranges, which vary in size from about 850 hectares for adult females to 2,500 hectares for sub-adult and adult males, with a high degree of overlap. Orangutans in peat swamp forests eat a high proportion of fruit year-round, unlike orangutans living in

other lowland forest types – especially those that are a mixture of forest trees dominated by tall dipterocarp trees. This is because fruit production and availability in peat swamp forest is relatively regular when compared to other lowland forest dominated by dipterocarps, where it is highly seasonal (with the majority of trees fruiting in synchrony for short intervals, followed by extended periods of low fruit availability).

Orangutans need large quantities of food to meet their daily requirements of energy and nutrients. The poorer the energy and nutritional quality of food, the further orangutans have to forage, and the more time they spend feeding in order to ingest the same quantity of nutrients. For this reason, orangutans living in peat swamp forests rest less often and travel further than orangutans in forests dominated by dipterocarp trees.

Fig trees constitute about three percent of all tree species in the forests that orangutans inhabit. Strangler figs produce fruit year-round, and orangutans feed on them constantly, while other fruit trees have more limited fruiting periods. Because figs are high in fiber but low in energy, they are a staple food of orangutans when other fruits are in low supply. Nevertheless, figs can support orangutans throughout the year when there are no other fruits available. When fruits are not available in sufficient numbers, orangutans will eat less nutrient-rich foods such as inner bark (cambium) and leaves, and will usually lose weight as a result.

BEHAVIOR

After nearly 50 years of studying the orangutan, we have learned a lot about its reproductive behavior, feeding, and social behavior. Some orangutan populations have distinct ‘cultures’, exhibiting different ways of building their sleeping platforms, different calling patterns, and distinctive techniques to extract foods that are difficult to obtain. Cultural differences are most radical where a geographic barrier such as a river separates orangutan populations. These behavioral differences reflect the impressive learning ability of orangutans.

Field observations are usually made on individual orangutans that have become used to the presence of people, since it is remarkably difficult to encounter orangutans in the wild. Perhaps because of hunting, they generally avoid people. An alternative approach is to count orangutan sleeping platforms (‘nests’). While this method provides some measure of local abundance, it is difficult to reliably translate a nest count into an estimate of the size of the local population.

Orangutan surveys in Kalimantan reveal that while orangutans prefer forests with continuous canopies, they are also able to live in disturbed forest. The extent to which orangutans can tolerate changes to the quality of their shelter, area of natural forest, and amount of food available to them seems to depend on the particular species and subspecies, with animals in Sumatra appearing to be less able to cope with changes to their environment.

EFFECTS OF LOGGING

When forests are degraded through logging, the availability of food for orangutans may change dramatically. For example, if high volumes of timber are extracted, some companies will remove strangler figs and lianas, thus directly impacting orangutan food resources. Logging also affects both the distribution of trees and the number of vertical layers (stratum) of trees that make up the structure of a forest, resulting in larger gaps between trees, which makes travel difficult and may significantly reduce the number of orangutans in a given area. Declines in densities of up to 30% have been reported in Kalimantan, and much higher declines have been reported in Sumatra.

The severity of the decline in orangutan populations also depends on whether logging crews hunt orangutans during commercial operations to remove trees. Even when no hunting takes place, orangutans will avoid logging crews and move away from active logging areas. If the local situation is conducive, i.e., few people live in the area and there is minimal breaking up of continuous forest into smaller forest units or blocks caused by roads and tracks, then orangutans will eventually return to such forests. If left alone, most logged forests will rehabilitate over 50 to 150 years, and once again be able to support natural population densities of orangutans.

Reduced impact logging (RIL) is the process whereby only selected individual trees are commercially extracted from a concession in a manner that avoids or reduces damage to other trees, vegetation, and to the soil and its ability to retain water. RIL, through reduced forest degradation, can considerably limit the harm to orangutans of commercial timber extraction, such that medium-to-high densities of orangutans can survive if RIL is applied.

CONVERSION TO PLANTATIONS

Converting forest into industrial plantations generally involves clearing all remaining forest and scrub vegetation and then planting fast-growing trees to produce tree fiber. Plantations consisting of a single tree species generally offer little or no food for orangutans, effectively reducing the number of orangutans that can exist in an area – in some cases to zero. However, some types of plantations may offer food sources for orangutans, at least in the short term. For example, the inner bark of *Acacia mangium* may provide sufficient nutrition to sustain individual orangutans, which seem to like the sugary taste of the tree sap. Unfortunately, because orangutans strip the bark and kill the tree when feeding on the sap, this leads to crop losses and potential conflict with concession managers.

Challenges in orangutan habitat research include how best to design and manage the landscape to maximize the survival chances of orangutans while minimizing economic losses to private companies and the surrounding communities. Retaining areas of untouched forest (set-asides) that are connected by corridors containing fruit and nesting trees (located in the periphery of plantations, so as not to encourage orangutans to move deeper into the plantation) should be key elements of orangutan management in plantations.

Some recommendations to manage the basic requirements of orangutans include:

- 1) Retain large trees to facilitate their movement through the forest canopy and building of nests.
- 2) Retain favored fruit trees, especially fig trees.
- 3) Do not cut lianas and figs, except when felling.
- 4) Minimize roads and infrastructure that break up forests into smaller patches.
- 5) Identify the extent to which orangutans in concessions utilize adjacent areas; work with other stakeholders to manage adjacent areas so as to allow orangutans to move freely throughout their range.
- 6) Reduce conflicts between humans and orangutans by providing alternate habitat and undertaking proper planning in timber and oil palm plantations.

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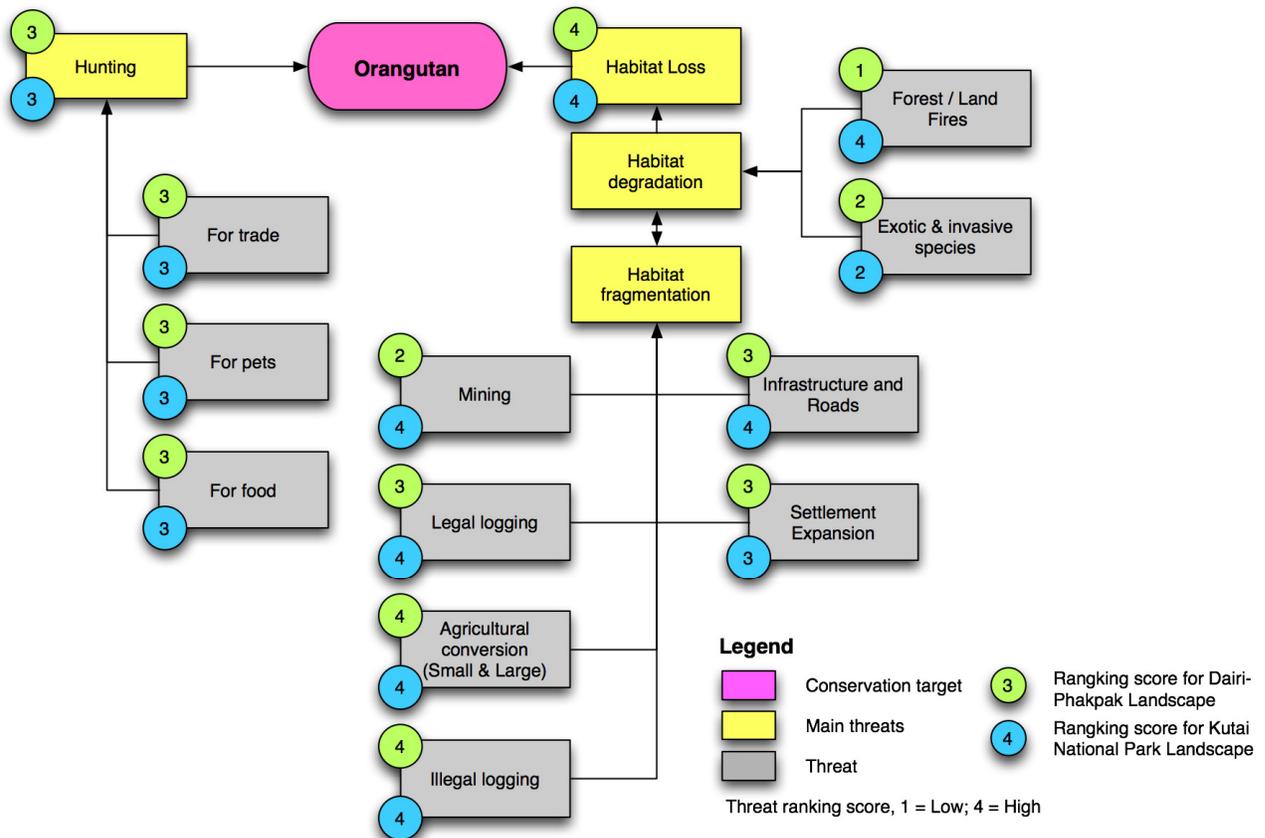
ANNEX 6. POTENTIAL THREATS TO ORANGUTANS

INTRODUCTION

Threats to orangutan survival in the wild may be direct or indirect. An example of a direct threat is when someone shoots an orangutan or chops down or burns the tree where it lives. An indirect threat is a threat that may have a devastating effect on long-term survival through a chain of relationships. For example, poor enforcement of wildlife or forestry laws allows illegal activities such as hunting to flourish. A company is usually concerned with the management and abatement of direct threats in its concession, because most indirect threats are beyond its ability to influence, at least in the short term.

The primary direct threats to the survival of orangutans in the wild are loss of habitat – through legal or illegal logging, land conversion, and wild fires – and wildlife trade. The range of global threats to orangutans at USAID-OCSP program sites (both direct and indirect) is illustrated in Figure 3.

Figure 3. Globally ranked threats to orangutans in USAID-OCSP focus sites



DIRECT THREATS

Oil palm plantations

A 2007 United Nations Environment Program (UNEP) report found that illegal logging and fires have been overtaken by a huge expansion in oil palm plantations as the primary cause of deforestation. This oil palm expansion is in response to soaring demand from Western food manufacturers and the growing interest in bio-fuels. The UNEP report states that the loss of orangutan habitat is happening 30 per cent more rapidly than had previously been thought. The report says: 'Today, the rapid increase in [oil palm] plantation acreage is one of the greatest threats to orangutans and the forests on which they depend. In Indonesia, it is now the primary cause of permanent rainforest loss. The huge demand for this versatile product makes it very difficult to curb the spread of plantations.'

There are approximately 12 million hectares of orangutan habitat remaining in Kalimantan. Eight percent of this area is now threatened by oil palm plantations. Although the proportion is relatively low, the areas now being threatened by oil palm have some of the highest densities of orangutans in Kalimantan. Since oil palm monoculture does not provide a viable habitat for orangutans, oil palm development is unequivocally a major cause of orangutan population decline. Given the average orangutan densities in the planned oil palm areas, if this development goes ahead, it would eradicate the habitat of about 9,800 orangutans – about a fifth of Kalimantan's known orangutan population as of 2004.

Illegal logging

The UNEP report states that illegal logging is now taking place in 27 of 41 national parks in Indonesia and is probably still on the increase. The report says: 'At current rates of intrusions, it is likely that some parks may become severely degraded in as little as three to five years, that is, by 2012.' Illegal logging is a serious challenge, in part because it is difficult to enforce the law in Indonesia's vast parks, where only 2,000 rangers patrol an area exceeding 100,000 square kilometers.

Wild fires

A related cause of habitat loss is the often uncontrollable fires that are set to clear land in preparation for oil palm planting. Orangutans are frequently caught up in these fires and burned to death.

Habitat fragmentation

Activities that cause existing forested areas to become fragmented into blocks of various sizes, separated by converted land, roads and other infrastructure development, directly reduce the area in which orangutans can roam. These new restrictions on their home ranges reduce the resources available for orangutans to survive, making them more vulnerable to local extinction from starvation, disease, and fire. Habitat fragmentation also restricts genetic flow between various orangutan sub-populations. This leads to inbreeding, with higher rates of genetic diseases being passed to offspring, and lower rates of offspring survival. This seriously impacts orangutans' ability to survive in small patches of forest in the long term.

Hunting & trade

The hunting and trading of orangutans also significantly impacts the remaining wild populations. Hunters and traffickers focus on the orangutans that are easiest to capture or that have the greatest economic value. Orangutan babies are therefore the primary targets for traffickers.

Although it is difficult to assess impact of the orangutan trade on wild populations, data suggests that within Indonesia the number of Bornean orangutans that are traded may exceed 500 individuals annually. The vast majority of these are young individuals. Since it is common for each juvenile orangutan traded to have had its mother killed in the process of its capture, this represents a significant loss to the wild orangutan population. Given female orangutans' slow reproductive rates and long periods spent nurturing their young, the killing of 500 females each year is enough to cause the wild population to become extinct. Orangutans are one of the most popular species for circuses, the pet market, entertainers, and private collectors around the world. This all goes on despite Indonesia being a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and orangutans being listed in Appendix I, which prohibits all international commercial trade among signatory nations.

INDIRECT THREATS

There are many indirect threats that create an enabling environment for the direct threats. One of these indirect threats is the cycle of poverty in communities living in and near forests inhabited by orangutans. Impoverished communities often hunt orangutans for food, clear their forests for agriculture, and engage in illegal logging. However, a more intense threat arises from the absence of appropriate laws to protect orangutan habitat: while it is illegal to kill orangutans, there are no laws that protect their habitat. Meanwhile, the system established to enforce wildlife laws that are supposed to protect orangutans performs poorly.

FURTHER READING

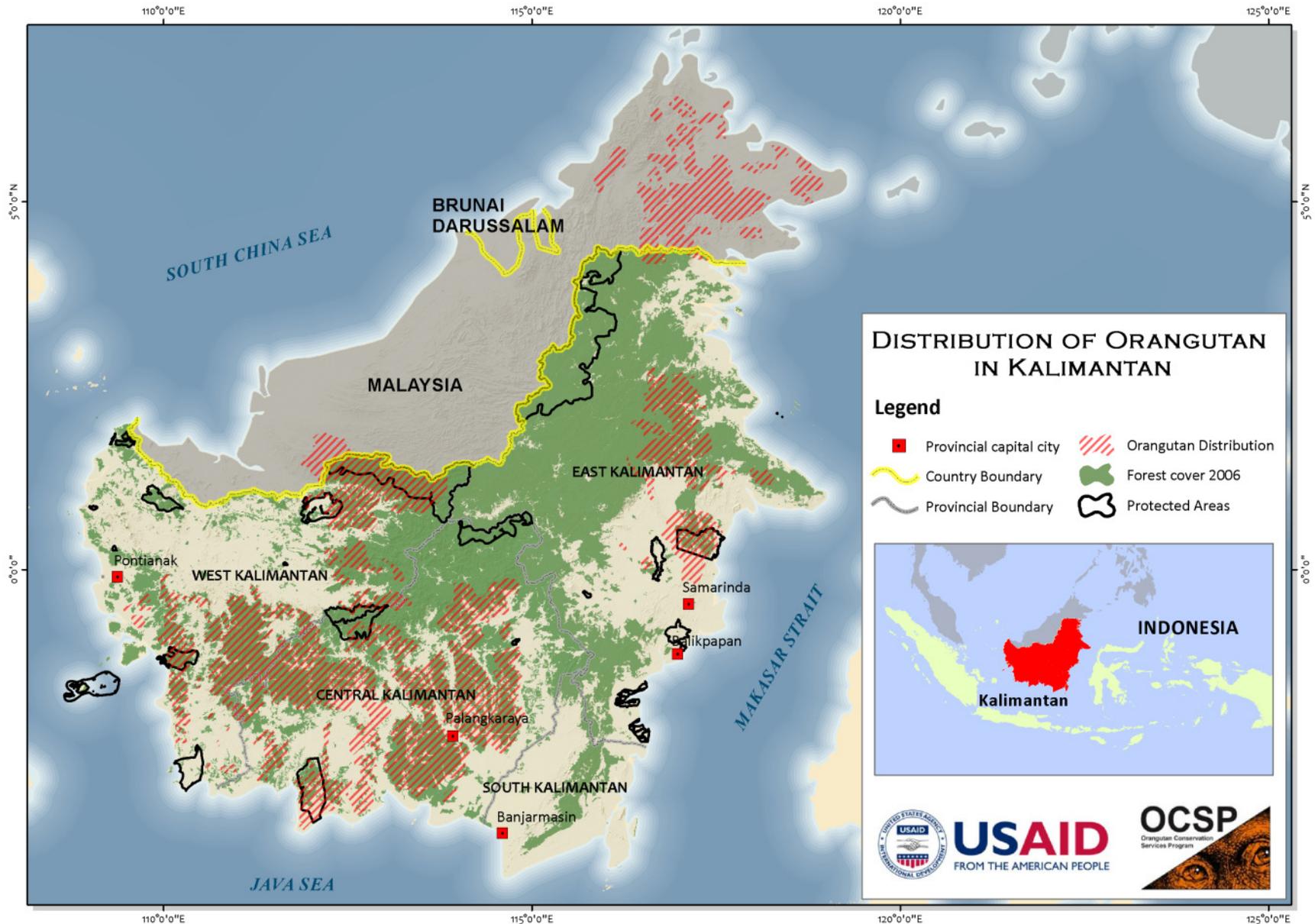
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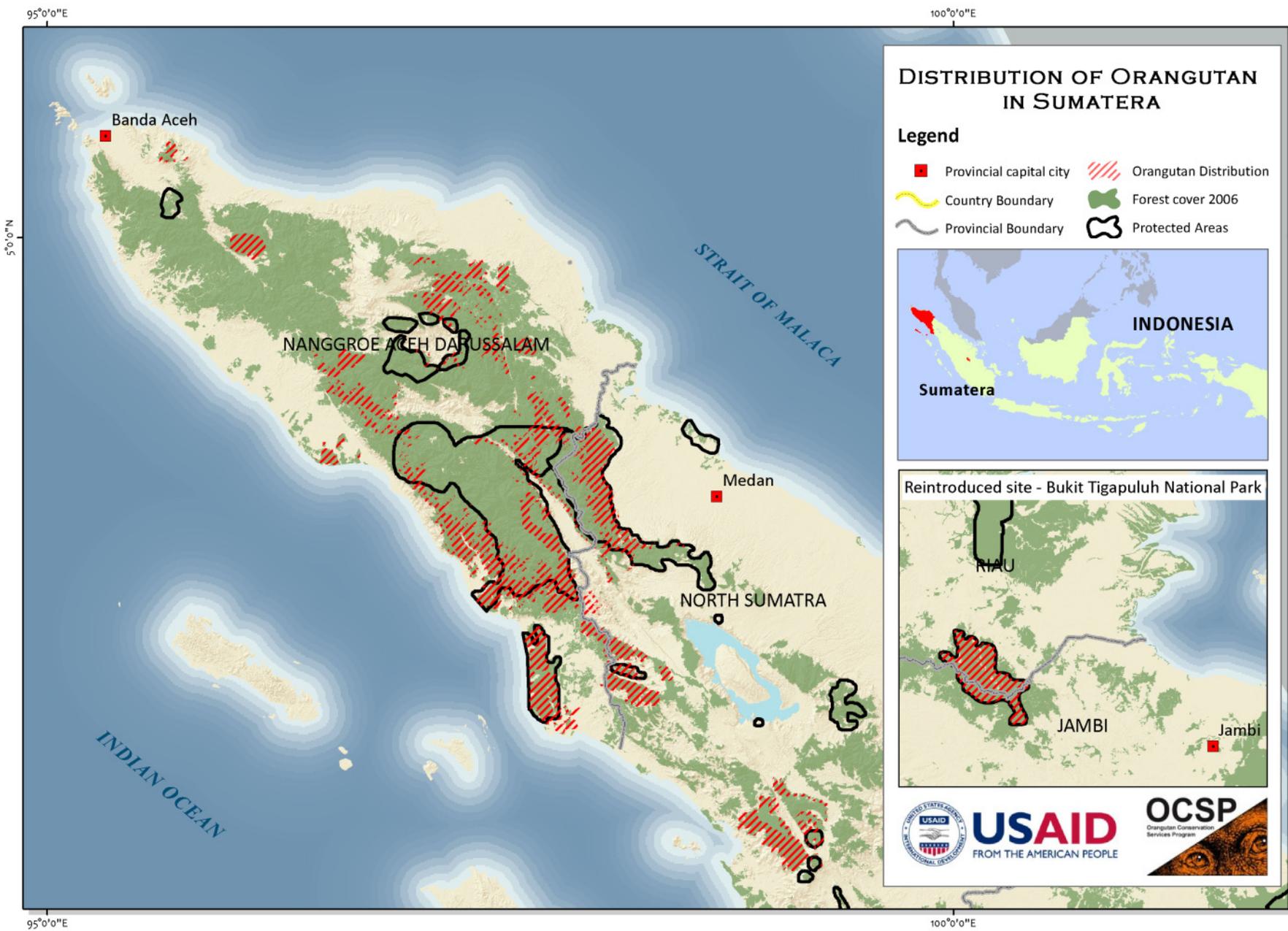
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Annex 7. Maps of orangutan distribution in Sumatra and Kalimantan





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