

CEPF SMALL GRANT FINAL PROJECT COMPLETION REPORT

I. BASIC DATA

Organization Legal Name: LightHawk

Project Title (as stated in the grant agreement):

Protecting Biodiversity in the Selva Maya Corridor Through the Aerial Perspective

Implementation Partners for This Project:

Belize: Ministry of Natural Resources/Belize Forest Department, Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium, Friends for Conservation and Development, Programme for Belize.

Guatemala: Wildlife Conservation Society, Asociación Balam, Fundación Defensores de la Naturaleza, Consejo Nacional de Áreas Protegidas (CONAP), Centro de Monitoreo y Evaluación del CONAP (CEMEC), Tropicó Verde.

Mexico: Amigos de Sian Ka'an, Pronatura Península de Yucatán, A. C. (PPY), Pronatura Chiapas.

Project Dates (as stated in the grant agreement): 1 February 2008 – 30 June 2008

Date of Report (month/year): August, 2008

II. OPENING REMARKS

Provide any opening remarks that may assist in the review of this report.

LightHawk is a volunteer pilot-based organization that flies environmental missions in collaboration with a growing network of more than 140 pilots and hundreds of partner organizations throughout Central and North America. Our mission is to champion environmental protection through the unique perspective of flight. We work collaboratively with our conservation partners in eight Mesoamerican countries to help them better understand the environment and their place in it, the impacts of a growing economy, and the potential benefits of sustainable industry and biological diversity. From the air, the tension between tourist development, illegal colonization, corporate or illegal clearing and farming and the preservation of the integrity of the habitat and forests is obvious. Our conservation partners, which include government agencies and non-governmental organizations, work to bring attention, understanding, and support to bear on the problems as a means to address them, but have few resources of their own to apply towards biodiversity protection. LightHawk provides them with an invaluable tool—the aerial perspective—to aid their biodiversity protection efforts.

Note: LightHawk's original request to CEPF was for \$75,000 with a total project budget of \$120,000. However, by the time the proposal was evaluated by CEPF, LightHawk was told that most of CEPF's funds had been committed, and only \$20,000 was available for the project. LightHawk accepted the reduced funding, but nevertheless completed the larger scope of work described in the original proposal. The additional "unfunded" costs were covered by LightHawk general funds, individual donations and grants

III. NARRATIVE QUESTIONS

1. What was the initial objective of this project?

The initial objective of this project was to provide our conservation partners with the aerial perspective to aid their biodiversity protection efforts in the Selva Maya Corridor. More specifically, LightHawk intended through this project to provide our conservation partners:

- Real-time information on land conditions that aid in planning and management activities;
- Access to flight for threat assessments and fire prevention and detection, enabling park and protected area staff to deploy on-the-ground resources for immediate response and prevention measures;
- Ability to detect and halt or immediately address violations of land tenure laws, such as illegal colonization, timber harvesting, and agricultural activities;
- Ability to identify, document and protect areas that are critical for the conservation of global biodiversity;
- Increased opportunities for community and civil society education that help to foster stewardship of protected areas – through guided media tours and guided community educational tours;
- Access to aerial photos, video, and flight route maps that enables the deployment of ground patrols and contributes to the production of scientific maps, climate and condition charting, and other cartographic information and photos that can be shared with other institutions, national and international agencies and scientific institutions.

2. Did the objectives of your project change during implementation? If so, please explain why and how.

No, the objectives remained the same.

3. How was your project successful in achieving the expected objectives?

The funding provided by CEPF helped us to protect biodiversity in the Selva Maya and Selva Zoque Corridors by enabling us to collaborate with key conservation partners in Belize, Guatemala and Mexico. Therefore, our request for funding was submitted on behalf of our conservation partners that we serve in this region and that benefit from the aerial perspective that we provide in every flight. Our efforts were focus on Parque Nacional Laguna del Tigre, El Gran Peten, Selva Lacandona y Sierra del Lacandon, Sierra Madre de Chiapas, and Chiquitibul/Montañas Mayas which are part of the Selva Maya Corridor.

With this project we were able to fly with 27 different organizations (NGOs, government institutions, media, private and public institutions among others):

Ministry of Natural Resources/Belize Forest Department
Bladen Foundation for Research and Environmental Education (BFREE)
Bladen Management Consortium
Friends for Conservation and Development
Programme for Belize
University of Belize
Wildlife Conservation Society
Ministry of Agriculture, Fisheries and Co-operatives of Belize (MAFC)
Thomas Gomez and son's organization
Friends of the Valley
Asociación Balam
Wildtracks
Fundación Defensores de la Naturaleza
Consejo Nacional de Áreas Protegidas (CONAP)
Centro de Monitoreo y Evaluación del CONAP (CEMEC)
Sistema Nacional de Prevención y Control de Incendios Forestales del CONAP (SIPECIF)

Trópico Verde
Asociación de Comunidades Forestales de Peten (ACOFOP)
Empresa Comunitaria al Servicio del Bosque, S.A. (FORESCOM)
Municipality of Poptun
Archaeological Project WAKA-Peru
Factor Channel TV
SIPCIP Poptun
Center for Conservation Studies of the University of San Carlos (CECON-USAC)
Amigos de Sian Ka'aan
Pronatura Peninsula de Yucatan, A. C. (PPY)
Centro de Investigación Científico de Yucatan

We flew a total of 157 hours and a total of 137 passengers; among those passengers we had scientists, community members, media representatives, government and non-governmental authorities, park rangers, park managers, among others (Please see annex 1). We were able to fly over 22 different conservation sites (protected areas, reserves, national parks and conservation areas)(Please see annex 2). And we were able to help scientists conducting research on species of high conservation interest like jaguars, harpy eagles, tapir, manatees and macaws.

More specifically, the project was very successful; we achieved all of our specific objectives. A more detailed explanation in how and with which partner we achieved each objective is stated below:

- **Real-time information on land conditions that aid in planning and management activities:** Every flight that we conducted over the Selva Maya Corridor was crucial for our partners in order to gather very effectively real-time information on their conservation sites which allowed them to plan and manage based on that actual information.

For example: on April 16, 2008, LightHawk assisted with two flights for the Belize Foundation for Research and Environmental Education (BFREE) to monitor the Bladen Nature Reserve. The first flight provided the Bladen Nature Reserve ranger staff with an opportunity to monitor and access areas of the Bladen Nature Reserve that otherwise would be almost impossible to monitor. The Rangers collected information on the status as well as illegal activities and threats to the reserve including logging roads, fire threats, agricultural expansion and land clearing, xate (decorative palm) camps and hunting trails. The second flight gave an aerial perspective of the area to the avian technicians conducting a research project on harpy eagles in the Bladen Nature Reserve.

Quote from one of the passengers (partner) in that flight:

“When I flew with LightHawk 3 years ago we discovered illegal clearings into our property in the Bladen River as well as in the Bladen Nature Reserve. These illegal activities were stopped, and these actions resulted in funding that allowed us to patrol fulltime. This year we photographed continued development and clearings in Trio and possible into our property line. We also got good pictures and video shots that will be used in our website and educational programs for researchers doing work on the Bladen Nature Reserve. In particular, I took a lot of video shots and pictures of the Quebrada de Oro River Valley where we are studying harpy eagles and migratory birds. We will be leading a big “Harpy Blitz” next week and our main focus will be searching for nest sites. In addition, we will be exploring a sinkhole cave that I was able to photograph on the flight. Thank you LightHawk, your help has been of so much value to us here in Belize.”

--Jacob Marlin, Director, Belize Foundation for Research and Environmental Education--

Partners that we flew under this objective were:

Belize: Ministry of Natural Resources/Belize Forest Department, Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium, Friends for Conservation and Development, Programme for Belize.

Guatemala: Wildlife Conservation Society, Asociación Balam, Fundacion Defensores de la Naturaleza, Consejo Nacional de Areas Protegidas (CONAP), Centro de Monitoreo y Evaluación del CONAP (CEMEC), Trópico Verde.

Mexico: Amigos de Sian Ka'aan, Pronatura Peninsula de Yucatan, A. C. (PPY).

- **Access to flight for threat assessments and fire prevention and detection, enabling park and protected area staff to deploy on-the-ground resources for immediate response and prevention measures:** One of the major threats to the Selva Maya Corridor are illegal and wild fires, flying our partners periodically over the Corridor allows them to monitor and control these fires.

For example: On April 28, 2008, LightHawk flew CONAP (National Park Service), Guatemala Fire Prevention System (SIPECIF), Center for Monitoring and Evaluation of CONAP (CEMEC), and personnel from the Municipality of Poptún over the Montañas Mayas – Chiquibul Biosphere Reserve adjacent to Belize to monitor the state of advancing forest fires. The flight helped them identify priority areas, and devise field strategies for combating the advance of the most preoccupying "fronts" of fire in that area of the reserve.

Quote from one of the passengers (partner) in that flight:

"It was a very important experience because we were able to physically see the condition of the Reserve. It's interesting to realize the use given to natural resources and mostly, it let us think about what actions need to be taken to counteract negative impacts."

--Lubia Torres de Alfaro, Poptun Municipality--

Partners that we flew under this objective were:

Belize: Ministry of Natural Resources/Belize Forest Department, Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium, Friends for Conservation and Development.

Guatemala: Wildlife Conservation Society, Asociación Balam, Fundacion Defensores de la Naturaleza, Consejo Nacional de Areas Protegidas (CONAP), Centro de Monitoreo y Evaluación del CONAP (CEMEC), Tropicico Verde.

Mexico: Pronatura Peninsula de Yucatan, A. C. (PPY).

- **Ability to detect and halt or immediately address violations of land tenure laws, such as illegal colonization, timber harvesting, and agricultural activities:** Overflights are extremely useful to detect negative anthropogenic activities inside the Corridor; most of these conservation areas inside the Corridor possess a very limited number of personnel in charge of monitoring them; therefore, a view from the air allows them to detect and stop illegal activities that jeopardize the conservation of the Corridor.

For example: On April 25, LightHawk flew over Mirador-Rio Azul National Park with the Director of the National Council of Protected Areas (CONAP) in Petén, Licda Mariela López Díaz, José Maria Castillo of Asociación Balam, and Roan Balas McNab and José Moreira of Wildlife Conservation Society Guatemala. While the majority of the park was found to be in pristine condition, this flight revealed the susceptibility of this remote park, as evidenced by the presence of 12 small clearings presumably destined for use as marijuana plantations. At least 5 of the clearings had been recently burned, with one of them still spewing smoke. Having the Regional Director of CONAP on this flight was a huge plus, as she was able to see for herself the challenge inherent in protecting the area. The flight continued along the

border with Belize, revealing a large clearing spanning of some 150 acres immediately adjacent with Guatemala.

Quote from one of the passengers (partner) in that flight:

"Being able to evaluate what is happening inside the reserve in a short flight was very important."

--*Gerardo Paiz Schwartz, CONAP.*--

Partners that we flew under this objective were:

Belize: Ministry of Natural Resources/Belize Forest Department, Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium, Friends for Conservation and Development, Programme for Belize.

Guatemala: Wildlife Conservation Society, Asociación Balam, Consejo Nacional de Areas Protegidas (CONAP), Centro de Monitoreo y Evaluación del CONAP (CEMEC).

Mexico: Pronatura Peninsula de Yucatan, A. C. (PPY).

- **Aim to identify, document and protect areas that are critical for the conservation of global biodiversity:** Our flights allow our partners to observe, identify and document critical conservation areas that normally they would not being able to distinguish very rapidly and effectively without the aerial perspective.

For example: On February 1, 2008, overflights allowed biologists to determine population structure, relative abundance, distribution, and habitat types used by manatees in the Bocas del Polochic Wildlife Refuge, Lake Izabal, Río Dulce and Caribbean Coast complex. The data will help improve management practices in the Bocas del Polochic Wildlife Refuge and allow for proposals of better practices in the other areas inhabited by manatees.

Quote from one of the passengers (partner) in that flight:

"The over flight was crucial to do our manatee monitoring work in Izabal."

--*Diana Ramirez, Fundación Defensores de la Naturaleza.*--

Partners that we flew under this objective were:

Belize: Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium.

Guatemala: Wildlife Conservation Society, Fundación Defensores de la Naturaleza, Consejo Nacional de Areas Protegidas (CONAP).

Mexico: Amigos de Sian Ka'aan, Pronatura Peninsula de Yucatan, A. C. (PPY).

- **Increased opportunities for community and civil society education that help to foster stewardship of protected areas – through guided media tours and guided community educational tours:**

For example: On April 8, 21 and May 5, 2008, LightHawk flew with Friends for Conservation and Development which are co-managers of the 264,000 acre Chiquibul National Park. Three flights were carried out over a period of six-weeks and the goals of these flights were 1) to bring in multiple partners from Belize and Guatemala in order for them to view the negative impacts and record any new illegal incursions by villagers living along the perimeter of the park and 2) monitor the response to these incursions. These flights were a follow-up to flights done in 2007. When illicit incursions are detected rangers along with other partners are deployed in the ground to address the situation. This year's flights demonstrated the positive affect of the previous flights, showing that the number of incursions has decreased.

Quote from one of the passengers (partner) in that flight:

"I noticed the need to improve the land conditions in my country. I was inspired by this flight, our institutions need to ensure along with the communities, the forest restoration."

--Felipe Romero Suchite, *Las Brisas de Chiquibul Community Mayor*--

Partners that we flew under this objective were:

Belize: Bladen Management Consortium.

Guatemala: Wildlife Conservation Society, Asociación Balam, Fundación Defensores de la Naturaleza.

Mexico: Amigos de Sian Ka'an.

- **Access to aerial photos, video, and flight route maps that enables the deployment of ground patrols and contributes to the production of scientific maps, climate and condition charting, and other cartographic information and photos that can be shared with other institutions, national and international agencies and scientific institutions:**

For example: On April 29, 2008, LightHawk flew over the eastern sector of Laguna del Tigre with personnel from the Ministry of the Environment and Natural Resources (MARN), the National Forest Institute (INAB), Wildlife Conservation Society, and Guatemala Fire Prevention System (SIPECIF) to evaluate the state of the "shield", a protection strategy focused on strengthening field presence at three remote forest camps designed to protect the eastern Maya Biosphere from the spreading threat of Laguna del Tigre. The flight revealed massive amounts of land clearing just west of the "shield", but found the habitat within the shield to be in generally good shape. A flying jabiru stork and large numbers of egrets were spotted during the flight. Some small holder settlements were discovered, with the aircraft doing loops around the rustic thatches to obtain their location via the GPS track recorded at all times. These settlements will later be prioritized for eviction in an effort to maintain intact the key scarlet macaw nesting sites of La Corona, El Bural, and El Peru.

Quote from one of the passengers (partner) in that flight:

"We were able to get key Guatemalan government representatives in the air to see the state of Laguna del Tigre and how solid protection needs to be focused on the remaining areas that are in good shape."

--Roan McNab, *Wildlife Conservation Society*—

Partners that we flew under this objective were:

Belize: Bladen Foundation for Research and Environmental Education (BFREE), Bladen Management Consortium, Friends for Conservation and Development.

Guatemala: Wildlife Conservation Society, Consejo Nacional de Areas Protegidas (CONAP), Centro de Monitoreo y Evaluación del CONAP (CEMEC).

Mexico: Amigos de Sian Ka'an.

4. Did your team experience any disappointments or failures during implementation? If so, please explain and comment on how the team addressed these disappointments and/or failures.

We were not able to conduct three of our flights over Chiapas with Pronatura, Chiapas due to weather. These flights have been re-scheduled for later this year.

In Guatemala, two flights were negatively impacted by smoke from forest fires. Smoke obscured the ground such that our partners were not able to collect their data. This is a common

occurrence in the region just before the rainy season and our flight schedule took this into account such that the higher-priority flights were not affected. The groups that were affected by the smoke will receive priority in scheduling next year's flights.

5. Describe any positive or negative lessons learned from this project that would be useful to share with other organizations interested in implementing a similar project.

As a conservation tool, flight is most effective when partners are properly prepared. Preparation involves having clear and measurable objectives for the flight, having a pre-set route especially with specific geographic coordinates, utilizing a digital camera to record visual information, and educating all passengers as to the route and their role in supporting the objectives of the flight.

Partners that took advantage of pre-flight information gathering and educating the passengers as to the route and goals of the flight seemed to get more out of the flights. Partners that had previous experience using flight as a conservation tool were generally more prepared. Even though we try to communicate the importance of preparation to new partners, some partners do not have the experience necessary to be able to utilize flights to their fullest extent. We will continue to improve our communication with both new and previous partners to help them enhance their utilization of flight as a conservation tool.

Finally, not all groups had a digital camera to be able to record visual data. We recognize that while flights are important, documenting the flight through photography allows our partners to continue using the information after the flights are over. Photographs are useful for capturing information, communicating results to others, and short and long-term comparison of landscape or ecological features. Next year, LightHawk will provide a digital camera to partners that do not have one so that all partners can take full advantage of this important communication and research tool.

6. Describe any follow-up activities related to this project.

In 2009 we will follow up with all groups flown in 2008 to see where the high-value conservation tool of flight can be put to work to support our partners' on-the-ground efforts.

7. Please provide any additional information to assist CEPF in understanding any other aspects of your completed project.

Flight is an incredibly useful tool for advancing conservation, especially in Mesoamerica where there are numerous threats to tropical biodiversity and very few resources to address them. Flight is also a very expensive and complex tool requiring expensive equipment (planes) and the technical expertise to use it, costly overhead including insurance, pilot recruitment, and critical equipment maintenance in remote areas, extensive coordination of partners, communication with multiple government agencies for permitting, and more. Funding from CEPF allowed us to utilize this critical tool to support the work of over 27 different organizations. Without flight some organizations would have never been able to carry out their work of forest fire reconnaissance, documentation of illegal logging in remote areas, and surveying of endangered manatees.

IV. ADDITIONAL FUNDING

Provide details of any additional donors who supported this project and any funding secured for the project as a result of the CEPF grant or success of the project.

Donor	Type of Funding*	Amount	Notes
Oak Foundation	A	\$45,000	
Individual donors	A	\$25,000	Total project costs are approximately \$90,000

***Additional funding should be reported using the following categories:**

- A** *Project co-financing (Other donors contribute to the direct costs of this CEPF project)*
- B** *Complementary funding (Other donors contribute to partner organizations that are working on a project linked with this CEPF project)*
- C** *Grantee and Partner leveraging (Other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF project.)*
- D** *Regional/Portfolio leveraging (Other donors make large investments in a region because of CEPF investment or successes related to this project.)*

V. ADDITIONAL COMMENTS AND RECOMMENDATIONS

We would be pleased if other conservation groups would contact us to determine if flights would be an appropriate tool to improve their conservation efforts.

VI. INFORMATION SHARING

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. One way we do this is by making programmatic project documents available on our Web site, www.cepf.net, and by marketing these in our newsletter and other communications.

These documents are accessed frequently by other CEPF grantees, potential partners, and the wider conservation community.

Please include your full contact details below:

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E-mail: aubeda@lighthawk.org

Annex 1: List of some of our passengers under this project

Country	Name	Position/Organization
Belize	Derric Chan	Chiquibul National Park Manager, Friends for Conservation and Development
Belize	Amparito Itza	Friends for Conservation and Development
Belize	Rafael Manzanero	Friends for Conservation and Development
Belize	Rudel Alvarez	Governor, Peten State Government
Belize	Felipe Romero Suchite	Las Brisas de Chiquibul Community Mayor
Belize	Fredy Aroldo Pinto Miranda	Dolores Peten Municipality
Belize	Ramon Balan Gonzalez	CONAP
Belize	Claudia Mariela Lopez Diaz	CONAP
Belize	Bonifacio Tut	Belize Forest Department
Belize	Paul Walker	Wildtracks
Belize	Marvin Blados	Belize Ministry of Agriculture
Belize	Abraham Gonzales	Agriculture Department
Belize	Antonio Rejon	The Ministry of Agriculture, Fisheries and Co-operatives (MAFC)
Belize	Dale Gomez	Thomas Gomez and son's organization
Belize	Leroy Lisbey	Forest Department
Belize	Kenrich Gordon	Department of Environment
Belize	Oscar Ulloa	Forest Department
Belize	Dwight Montero	Friends of the Valley
Belize	Dan Dowson	Belize Foundation for Research and Environmental Education
Belize	Alejandro Coy	Bladen Nature Reserve
Belize	Sipriano Canti	Bladen Nature Reserve
Belize	Pop Clemente	Bladen Nature Reserve
Belize	Jacob Marlin	Director, Belize Foundation for Research and Environmental Education
Belize	Kelly Marlin	Belize Foundation for Research and Environmental Education
Belize	Albert Tucker	Programme for Belize
Belize	Ivan Gillet	Programme for Belize
Guatemala	Diana Ramirez	Fundación Defensores de la Naturaleza
Guatemala	Oscar Hugo Machuca Coronado	Fundación Defensores de la Naturaleza
Guatemala	Luis Barricutos	Fundación Defensores de la Naturaleza
Guatemala	Roan Balas McNab	WCS Guatemala Program Director
Guatemala	Gerarno Paiz Schwartz	CONAP
Guatemala	Claudia Mariela Lopez Diaz	Director, CONAP
Guatemala	Julio Pineda Escobar	Fundación Defensores de la Naturaleza
Guatemala	Jose Maria Castillo	Asociación Balam
Guatemala	Fredy Solis	CEMEC
Guatemala	Ruben Alexander Choc Larios	SIPECIF
Guatemala	Rut Catalan	Trópico Verde
Guatemala	Damla Garcia	Trópico Verde
Guatemala	Seth Factor	Trópico Verde
Guatemala	Lubia Torres de Alfaro	Poptun Municipality
Guatemala	Michele Catalan	CECON-USAC
Guatemala	Carlos Olivea	SIPECIF
Guatemala	Aquiles Estuardo Hernandez	Tikal National Park
Guatemala	Amilcar Calderon	Director, Tikal National Park
Guatemala	Victor Hugo Ramos	CONAP, WCS
Guatemala	Arturo Godoy	Archaeological Project WAKA-Peru

Guatemala	Rony Valiente	SIPECIF
Mexico	Juan Carlos Faller Mendez	Pronatura
Mexico	Jose Angel Santamaria Ucan	Pronatura
Mexico	Maria Jose Rivas Sosa	Centro de Investigacion Cientifico de Yucatan
Mexico	Albert Franquesa Rimos	Amigos de Sian Ka'an

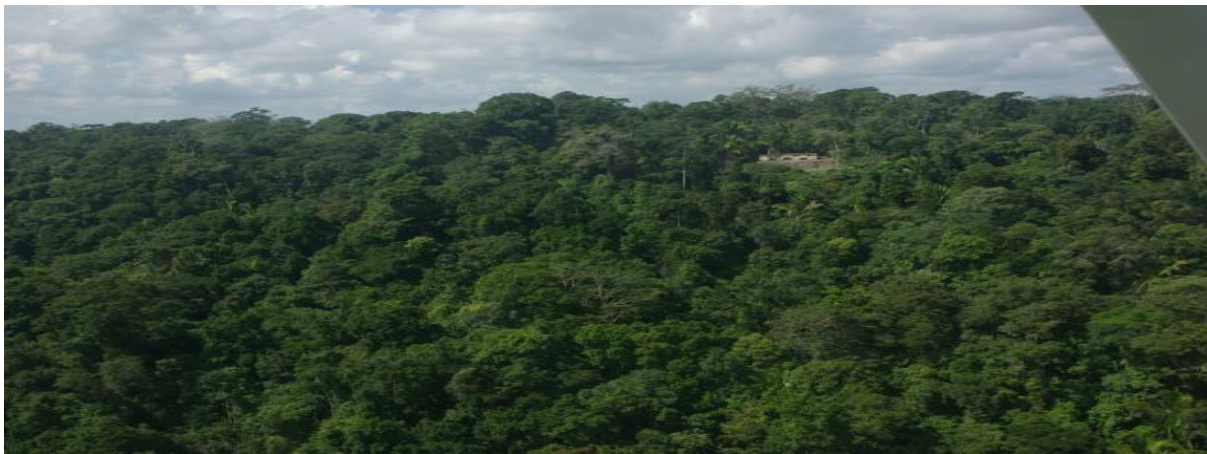
Annex 2: Conservation Sites were flights occurred

Country	Conservation site / Area of interest
Belize	Chiquibul National Park
Belize	Columbia River Forest Reserve
Belize	Sitte River Reserve
Belize	Deep River Forest Reserve
Belize	Bladen Nature Reserve
Belize	Rio Bravo Conservation and Management Area
Guatemala	Bocas del Polochic Wildlife Refuge
Guatemala	Lake Izabal
Guatemala	Mirador Río Azul National Park
Guatemala	Sierra del Lacandon National Park
Guatemala	Laguna del Tigre National Park
Guatemala	Protected Area El Ceibal
Guatemala	Protected Area Aguateca
Guatemala	Protected Area Dos Pilas
Guatemala	Protected Area San Román
Guatemala	Montañas Maya
Guatemala	Maya Biosphere Reserve
Guatemala	El Zots Biotope
Guatemala	Tikal National Park
Guatemala	El Peru Archaeological Site
Mexico	Península de Yucatán
Mexico	Conservation Area El Zapatal

Annex 3: Pictures from some of the overflights



Illegal extraction, Chiquibul National Park, Belize. Friends for Conservation and Development/LightHawk



Montañas Mayas with Mayan ruins in the background, Guatemala.
G. Simchuk/LightHawk



Mayan country, Guatemala. G.Simchuk/LightHawk.



Juan Carlos Faller Menéndez - PPY - L
Burned areas around the conservation area "El Zapatal",
Peninsula de Yucatan, Mexico. J.C.Feller
Menendez/Pronatura