

## DAVID L.A. GAVEAU

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### LANDSCAPE ECOLOGIST

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Nationality: French  
Date of Birth: 22 April 1973  
Languages: French, English, Indonesian, Italian

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### SUMMARY

David Gaveau has over ten years experience in monitoring forest landscapes using remote sensing technology. David has seven years experience in protected area management and biodiversity conservation in Indonesia. He holds two Master of Science degrees: one in Applied Optics from Imperial College, UK and another in Remote Sensing of the Environment from Florence University, Italy. He has recently received a PhD in Biodiversity Conservation from the Durrell Institute of Conservation and Ecology at the University of Kent, UK.

David began his professional career in 1999 as Higher Scientific Officer at the Centre for Ecology and Hydrology of the UK's Natural Environment Research Council. He carried out a three-year mapping research project to measure above-ground forest biomass and sub-metre precision canopy height using radar and laser scanning technologies over boreal and temperate forests. But, concerned by tropical deforestation and its effects on biological diversity David moved to Indonesia in 2002 to join the Wildlife Conservation Society-Indonesia Program (WCS-IP). David founded and managed WCS-IP's first Earth observation program from 2002 until 2007 with the overarching goal to improve transparency in Indonesian forest resources management. From 2004 until 2008, David also pursued his PhD research and responded to a call by UNFCCC to develop methods to better evaluate conservation interventions and to better measure avoided deforestation within restricted use areas in the context of emerging carbon markets seeking to reduce greenhouse gas emissions. David has recently launched an independent website ([Sumatranforest.org](http://Sumatranforest.org)) that puts the full range of geographic data about Sumatra's tropical deforestation at user's fingertips using Google Earth.

### EDUCATION

**PhD** in *Biodiversity Conservation*, 2008 Durrell Institute of Conservation and Ecology, University of Kent, UK.  
Thesis title: evaluating the effectiveness of protected areas in reducing tropical deforestation in Sumatra.  
Supervisor: Prof. Nigel Leader-Williams.

**MSc** equivalent in *Remote Sensing of the Environment*, 1998 National Institute of Optics, University of Florence, Italy

**MSc & DIC** in *Applied Optics*, 1995 Imperial College, University of London, UK.

**BSc** in *Physics*, 1994 Kingston University, UK

## PROFESSIONAL EXPERIENCE

### **March 09-May 09** *Consultant, Yayasan SIPEF.*

David is preparing a comprehensive action plan highlighting a 5-year conservation strategy to support Yayasan SIPEF in its mission to conserve 150 km<sup>2</sup> of pristine primary rainforest in an area adjacent to the UNESCO-listed Kerinci Seblat National Park (KSNP), Sumatra.

### **October 07-March 08** *Consultant, Centre for International Forestry Research.*

David developed predictive spatial models of deforestation for the island of Sumatra and for Aceh and a novel method to measure 'avoided deforestation' within restricted use areas by controlling for possible confounding factors, i.e. the displacement of deforestation from protected areas to adjacent land (leakage) and the generally remote location in which protected areas are established.

### **September 07** *Consultant, UNESCO-Indonesia.*

David prepared a comprehensive report on the history and underlying causes of deforestation within Bukit Barisan Selatan national park to assist UNESCO's Emergency Action Plan for the tropical rainforest heritage of Sumatra. The report included (i) empirical studies to evaluate the success of past conservation interventions and policies in maintaining forest cover inside this reserve and (ii) proposed strategies to prevent future deforestation.

### **August 05-June 07** *Principal investigator, Joint Wildlife Conservation Society-CIFOR survey.*

As part of UNESCO's Emergency Action Plan for the tropical rainforest heritage of Sumatra, David initiated a joint socio-economic research in Bukit Barisan Selatan National Park to investigate the deforestation-poverty link around Indonesian national parks. Responsibilities included allocating funds for the survey and coordinating efforts, carrying out interviews with partners (1,384 interviews of farmers), and assisting in the creation of a database.

### **January 04-January 05** *Consultant, Illegal logging Response Centre of the European Union.*

David mapped deforestation patterns in 'near real-time' inside the Bukit Barisan Selatan National Park, southern Sumatra and designed an effective surveillance strategy by integrating law enforcement patrols with satellite-based monitoring.

### **July 02-July 07** *Project coordinator, Wildlife Conservation Society—Indonesia Program.*

David founded and managed a satellite processing and GIS program. Responsibilities included analyzing deforestation patterns inside Indonesia's protected areas, identifying Indonesia's conservation priority areas, developing internet mapping technologies to disseminate the information to local, national and international NGOs, writing grant proposals, hiring, training and managing staff in RS/GIS technologies (5 staff), writing financial and technical reports to donors as well as scientific publications.

### **Jan 99- Jan 02** *Higher Scientific Officer, Centre for Ecology and Hydrology, UK.*

Participated in a large EU-funded mapping project over central Siberian boreal forests (900,000 km<sup>2</sup>) into classes of growing stock volume by means of satellite-based SAR Interferometry. Investigated the use of Airborne laser Scanning to retrieve canopy height with sub-metre precision from an airborne platform.

**96-98**, *Field scientist, Consiglio Nazionale delle Ricerche (CNR), Italy.* Mapped water quality in the Venice Lagoon by means of LiDAR fluorescence and investigated the use of Fluorescence remote sensing to assess the health of the Mediterranean sea grass *Posidonia Oceanica*.

## GRANTS

**2005-2007** Critical Ecosystems Partnership Fund, PI Gaveau D.L.A. *Annual forest cover change analysis and change detection map for Sumatra*. \$50,000.

**2005-2007** Institut the Recherche pour le Développement, PI Gaveau D.L.A. *Socio-economic drivers of deforestation in Bukit Barisan Selatan National Park*. 5,000 Euros.

**2006** PT. IndoCafco (subsidiary of Ecom international), PI Gaveau D.L.A. *Coffee map of Indonesia*. \$10,000.

**2003-2004** Illegal Logging Response Centre-European Union, PI Gaveau D.L.A. *Monitoring Illegal Logging in Bukit Barisan Selatan National Park, Sumatra*. 26,000 Euros.

## SPECIALISED SOFTWARE AND EXPERTISE

**Remote sensing:** Erdas Imagine, PCI, Tree-based classification (SEE5); **GIS and image processing:** ArcviewGIS, ArcGIS, Photoshop; **Internet mapping&Google Earth:** Tiles2kml; **Statistical analysis:** SPSS, Propensity Score Matching, Logistic Regression Modeling;.

## KEY PUBLICATIONS

### ***Work under review or in progress***

**Gaveau D.L.A.**, Wich S., Epting J., Juhn D., Kanninen M., Leader-Williams N. in review. Conserving Nature or promoting economic development in Aceh.

Levang P, Soadun S, **Gaveau D.L.A.**, Sunderland T. A portrait of the squatters of the Bukit Barisan Selatan National Park, Sumatra, Indonesia. *Environmental Conservation*.

### ***Work published or in press***

**Gaveau D.L.A.**, Epting J., Lyne O., Linkie M., Kumara I., Kanninen M., Leader-Williams N. in press. Evaluating whether protected areas reduce tropical deforestation in Sumatra. *Journal of Biogeography*.

**Gaveau D.L.A.**, Linkie M., Suyadi, Levang P., Leader-Williams N., 2009. Three decades of deforestation in Southwest Sumatra: effects of law enforcement, coffee prices and rural poverty. *Biological Conservation* 142 597-605

**Gaveau D.L.A.**, Setiabudi F., Wandono H., 2007. Three decades of deforestation in Southwest Sumatra: have protected areas halted forest loss and logging, and promoted re-growth?. *Biological Conservation* 134 (4) 495-504

Suyadi, **Gaveau D.L.A.** 2008. Akar penyebab deforestasi di Taman Nasional Bukit Barisan Selatan. *Jurnal Berita Biologi-LIPI*.

**Gaveau D.L.A.**, Andayani N (2007) Are efforts to conserve biodiversity in conflict with those to reduce poverty? a case study from Bukit Barisan Selatan national park. In: Redford KH, Fearn E, editors. Protected areas and human livelihoods. New York: Working Paper No. 32 Wildlife Conservation Society.

**Gaveau D.L.A.**, Hill R. (2003) Quantifying canopy height underestimation by laser pulse penetration in small-footprint airborne laser scanning data. *Canadian Journal of Remote Sensing* 29 (5) 650-657.

**Gaveau D.L.A.**, Balzter H., Plummer S. (2003) Forest woody biomass classification with satellite-based radar coherence over 900 000 km<sup>2</sup> in Central Siberia. *Forest Ecology and Management* 174 (1-3) 65-75.

**Gaveau D.L.A.** (2002) Modelling the dynamics of ERS-1/2 coherence with increasing woody biomass over boreal forests. *International Journal of Remote Sensing*, 23 (18) 3879-3885.

Hill, R.A., & **Gaveau, D.L.A.** (2002) Characterising forest structure by airborne laser scanning. In A.W. Mitchell, K. Secoy & T. Jackson eds, *Global Canopy Handbook: Techniques of Access and Study in the Forest Roof*. (Global Canopy Programme, Oxford).

Patenaude G., Hill R.A., Milne R., **Gaveau D.L.A.**, Briggs B.J. and Dawson T.P. (2005) Quantifying forest above ground carbon content using LiDAR remote sensing *Remote Sensing of Environment* 93 (3) 368-380.

Hill R, Hinsley S., **Gaveau D.L.A.**, Bellamy P. (2004) Predicting habitat quality for great tits (*Parus major*) with airborne laser scanning data. *International Journal of Remote Sensing* 25 (22) 4851-4855.

Hinsley S., Hill R, **Gaveau D.L.A.**, Bellamy P. (2002) Predicting woodland bird habitat with Airborne Laser Scanning. *Functional Ecology*, 16 (6) 851-657.

Balzter H., Talmon E., Wagner W., **Gaveau D.**, Plummer S., Yu J.J., Quegan S., Gluck M., Nilsson S., Tansey K., Oeskog A., Roth A. and Schmullius C. (2002) Accuracy assessment of a large-scale forest cover map of Central Siberia from Synthetic Aperture Radar. *Canadian Journal of Remote Sensing*, 28 (6) 719-737.

Wagner W., Luckman A., Vietmeier J., Tansey K., Balzter H., Schmullius C.C., Davidson M., **Gaveau D.**, Gluck M., LeToan T., Quegan S., Schvidenko A., Wiesmann, A., Yu J.J. (2003) Large-scale mapping of boreal forest in SIBERIA using ERS tandem coherence and JERS backscatter data. *Remote Sensing of Environment* 85 (2) 125-144.