

ABSTRACT BOOK

**27TH INTERNATIONAL
CONGRESS FOR
CONSERVATION BIOLOGY**

**4TH EUROPEAN CONGRESS
FOR CONSERVATION
BIOLOGY**



**ICCB
ECCB
2015**

**MISSION
BIODIVERSITY:
CHOOSING
NEW PATHS FOR
CONSERVATION**

**MONTPELLIER,
FRANCE
2-6 AUGUST 2015**



Society for Conservation Biology



**DRAFT DOCUMENT:
FINAL VERSION TO BE
PUBLISHED ONLINE
IN SEPTEMBER 2015**

populations must have been devastating. Nowadays, the near disappearance of many species of predators and the drastic reduction of their distribution area is a consequence of the direct persecution imposed over this period. The legal protection that these species enjoy currently is not yet warranty of their survival in the long-term in this region.

82-CHALLENGES AND OPPORTUNITIES FACING SUSTAINABLE LAND-USE IN FRONTIER REGIONS OF THE AMAZON

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In the last ten years the Brazilian Amazon has received increasing international attention, both for the dramatic fall in deforestation rates and the rising importance of its agricultural sector. The conservation and development trajectory of the region now stands at a crossroads, the future of which will be shaped in great part by landscape management decisions that are made in the coming decade. Here we provide a focus on some of the key issues facing the future of biodiversity conservation in regenerating and degraded forests that dominate much of the remaining private forest estate in frontier and post-frontier regions of eastern Amazonia. We employ both empirical data on the characteristics of more than 500 rural properties in two municipalities, together with an analysis of governance and institutional change in the state of Pará, and personal experience from engagement in state-level science-policy processes. We illustrate that while second-growth and degraded forests are a critical resource for smallholders who depend on fallow-farming systems, they are also of central importance in efforts to achieve compliance of these actors with Brazil's environmental legislation. However, significant uncertainties remain regarding the spatial planning and management of regenerating and degraded forests, including priorities and incentives for on and off-farm restoration, rehabilitation and compensation programs, and opportunities to integrate the management of both forest and production areas at both property and landscape scales. In situating our observations alongside the development a "Green Counties" program for the state, and Brazil's new federal restoration strategy and revised Forest Code, we identify specific opportunities for public policies seeking to foster more sustainable land-management and conservation programs in one of the most dynamic agricultural-forest frontier regions on the planet.

CRYOPRESERVATION FOR LONG-TERM CONSERVATION OF CORAL DIVERSITY: A CASE STUDY WITH POCILLOPORA DAMICORNIS.

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For several decades, the decline of coral diversity has been largely relayed by the scientific community. Increasing environmental perturbations and human activities drastically impact coral reef biodiversity. Ocean acidification and global warming constitute the two major threats. Despite the multiplicity of safeguard programs, the danger of extinction is now becoming a reality for a range of coral species. Cryopreservation, i.e. the storage of biological material at ultra-low temperature (liquid nitrogen, -196°C) may provide an alternative for the long-term ex situ conservation of these threatened organisms, which often have medical or pharmaceutical potential. Moreover, the development of cryopreservation protocols for coral may facilitate their establishment for other phyla of marine invertebrates. To date, only coral spermatozoa and dissociated cells have been successfully cryopreserved using a slow cooling protocol, while no such success has been obtained with pluricellular forms such as apexes or planulae. Various biomaterials from other phyla which failed to respond positively to slow cooling techniques have been successfully cryopreserved using the vitrification technique, which is based on the use of highly concentrated cryoprotectant (CPA) solutions and very high cooling and warming rates. With the objective of cryopreserving pluricellular forms from the tropical coral *Pocillopora damicornis* using a vitrification procedure, we tested the tolerance of cellular aggregates termed tissue balls (TBs) to CPA solutions. In addition to survival evaluation, histological observations were performed to study the effect of CPA treatments on TB structure. Our results showed that TBs could withstand exposure to CPA concentrations higher than 4.0 M and that they constituted a suitable material to optimize the various parameters of a cryopreservation protocol.

PRODUCTION VERSUS ENVIRONMENTAL IMPACT: CAN WE HAVE IT ALL ON A CONVENTIONAL ARABLE FARM?

Rob Field
RSPB

