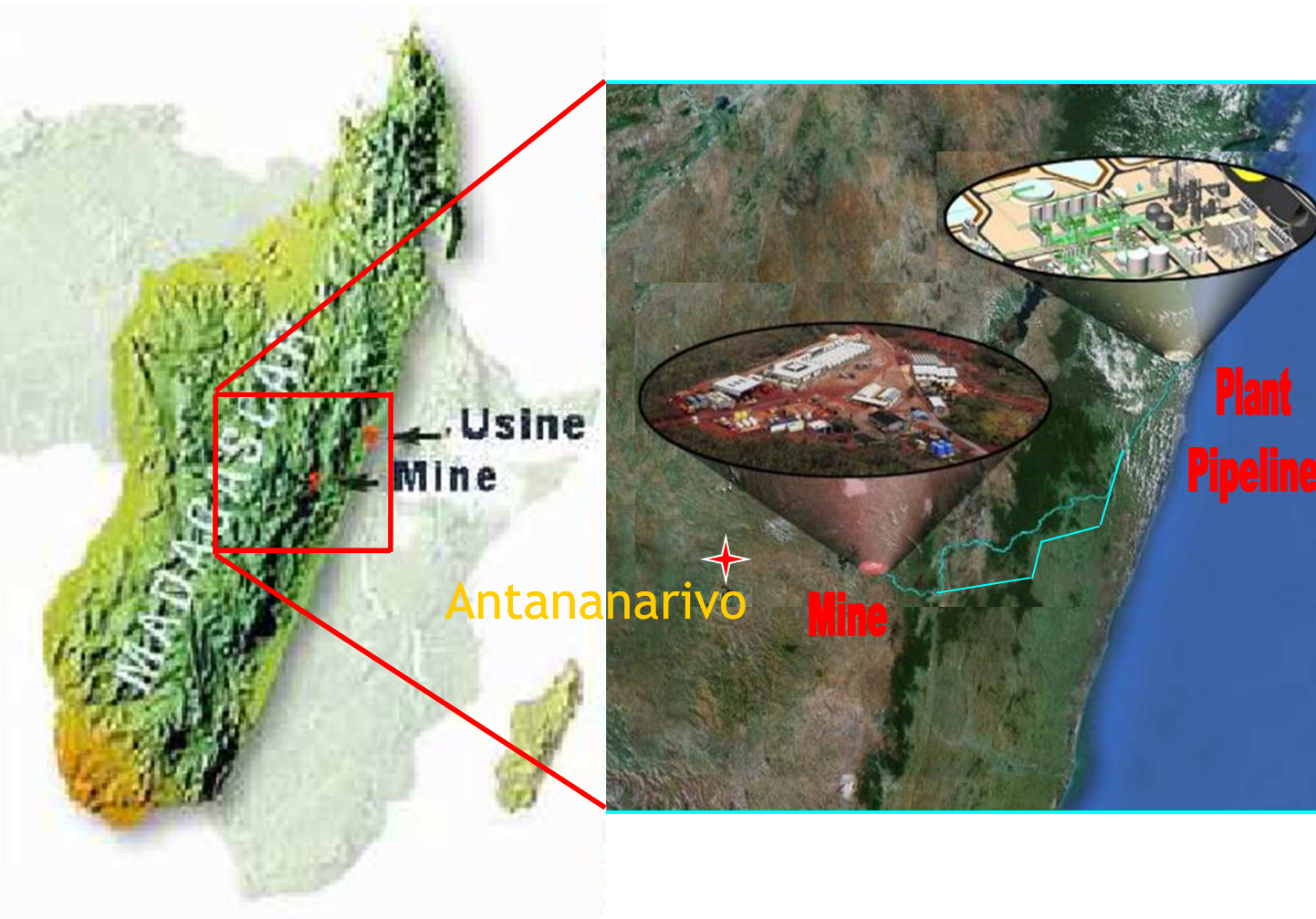


MINING & NO NET LOSS IN MADAGASCAR

Ambatovy Joint Venture – A Case Study

Andrew Cooke, Environment Manager, Ambatovy

PROJECT OVERVIEW



Nickel and cobalt mining & processing joint venture

Partners: Sherritt International, Sumitomo, KORES, SNC Lavalin

Investment: ~US\$7 billion

Annual Production:

Nickel 60,000 t

Cobalt 5,600 t

Ammonium sulfate 210,000 t

Commercial production since 2014

MISSION, VISION & BIODIVERSITY GOAL



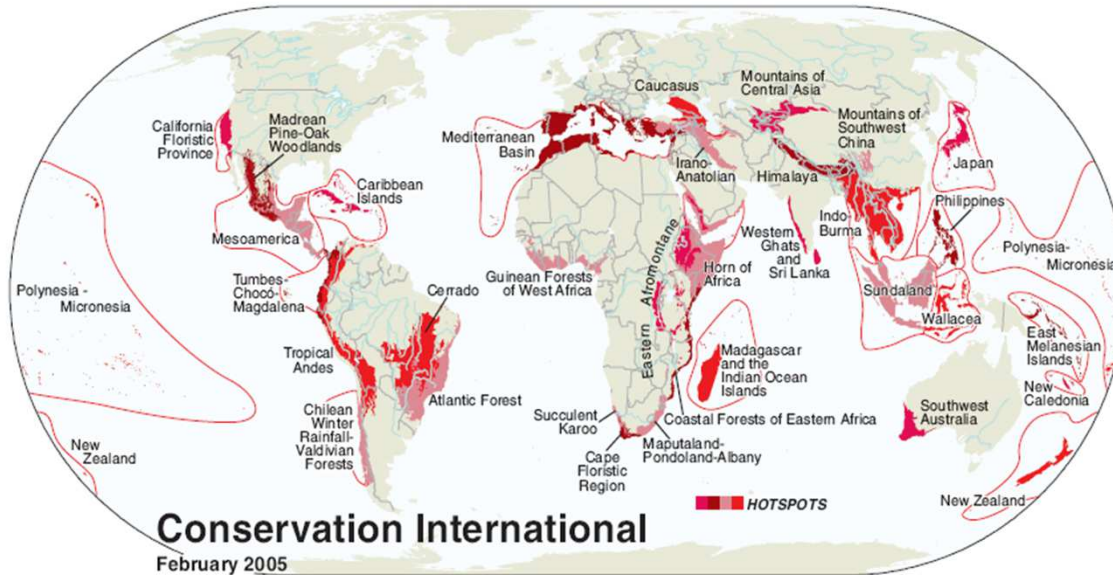
MISSION - Be a leader in the sustainable production of high quality nickel and cobalt for the global market.

VISION - Deliver world-class results in safety, environmental stewardship, social performance, product quality, production and cost efficiency

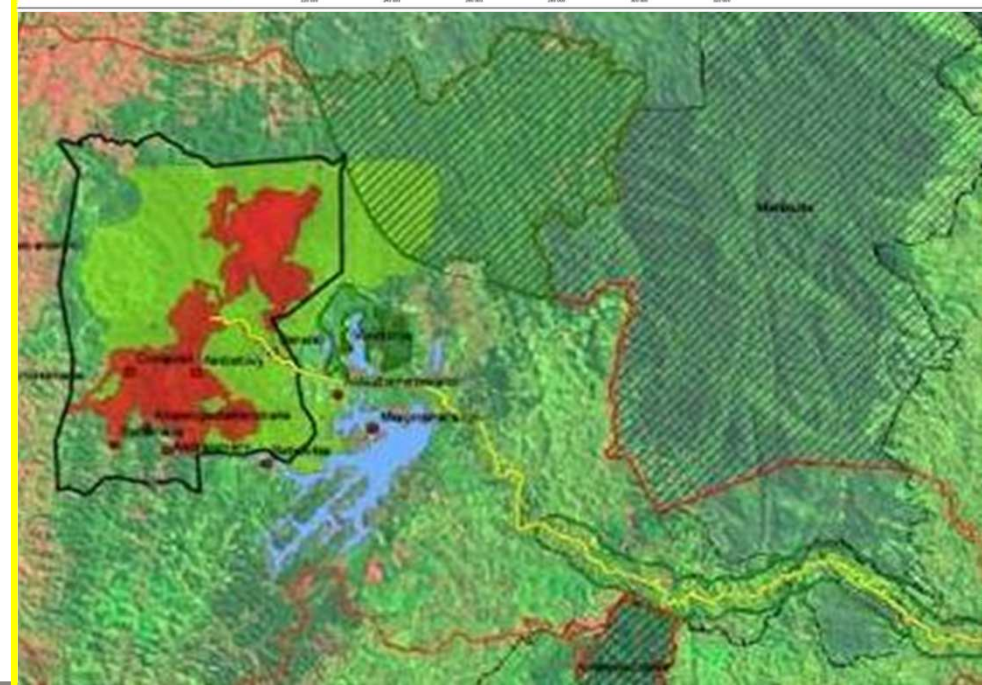
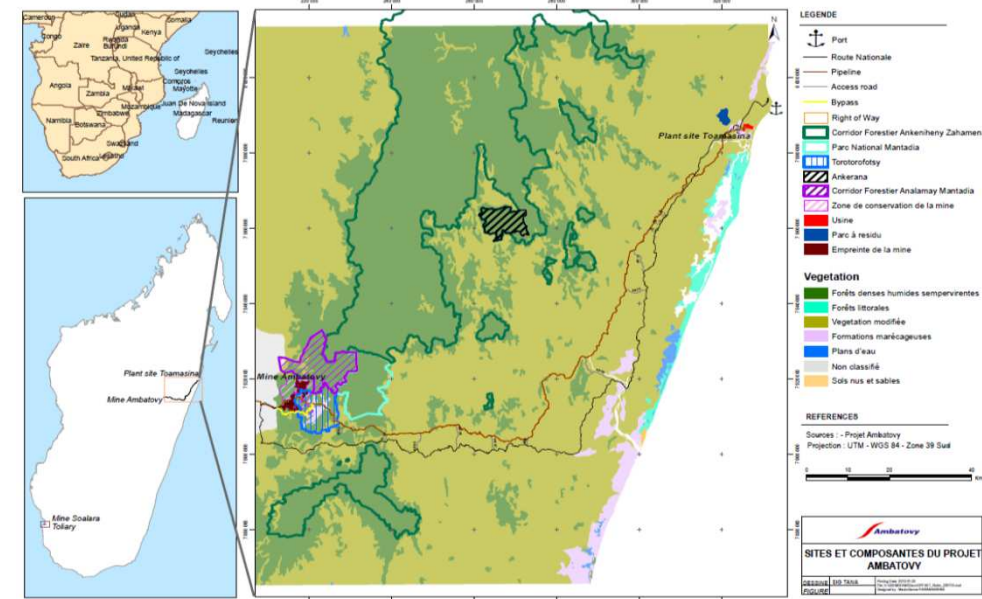
BIODIVERSITY GOAL - Deliver No Net Loss, and preferably a net gain, of biodiversity

DRIVERS - IFC PS6, Biodiversity Offset Standard, ICMM

BIODIVERSITY CONTEXT



- In Madagascar, a global hotspot
- In Eastern rainforest corridor
- Adjacent to Ramsar site
- Close to national parks
- Endangered & range-restricted species
- High species richness



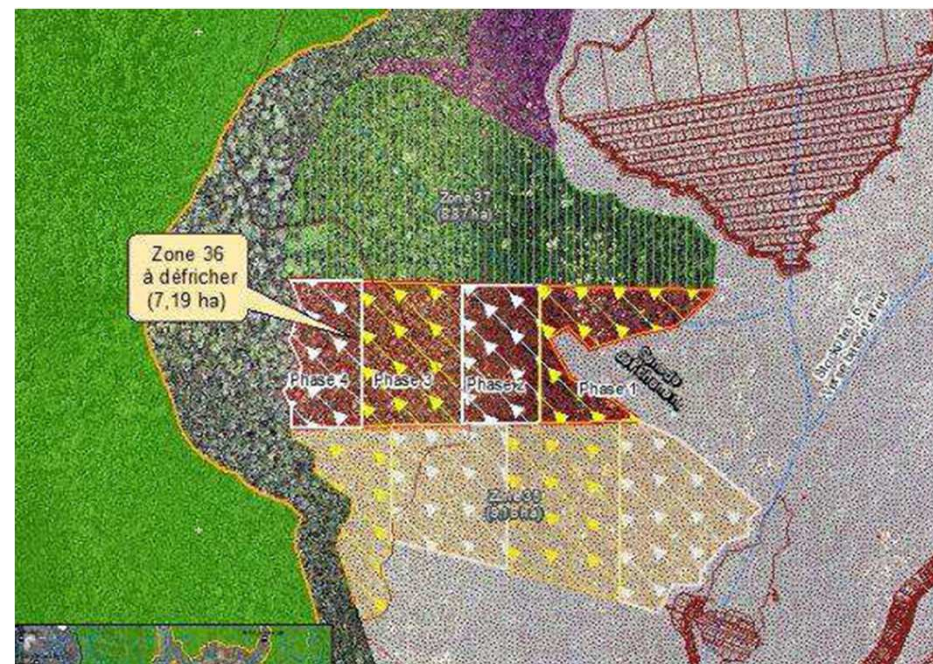
AVOID - MINIMIZE - RESTORE



Avoid - Pipeline tunnels under forest

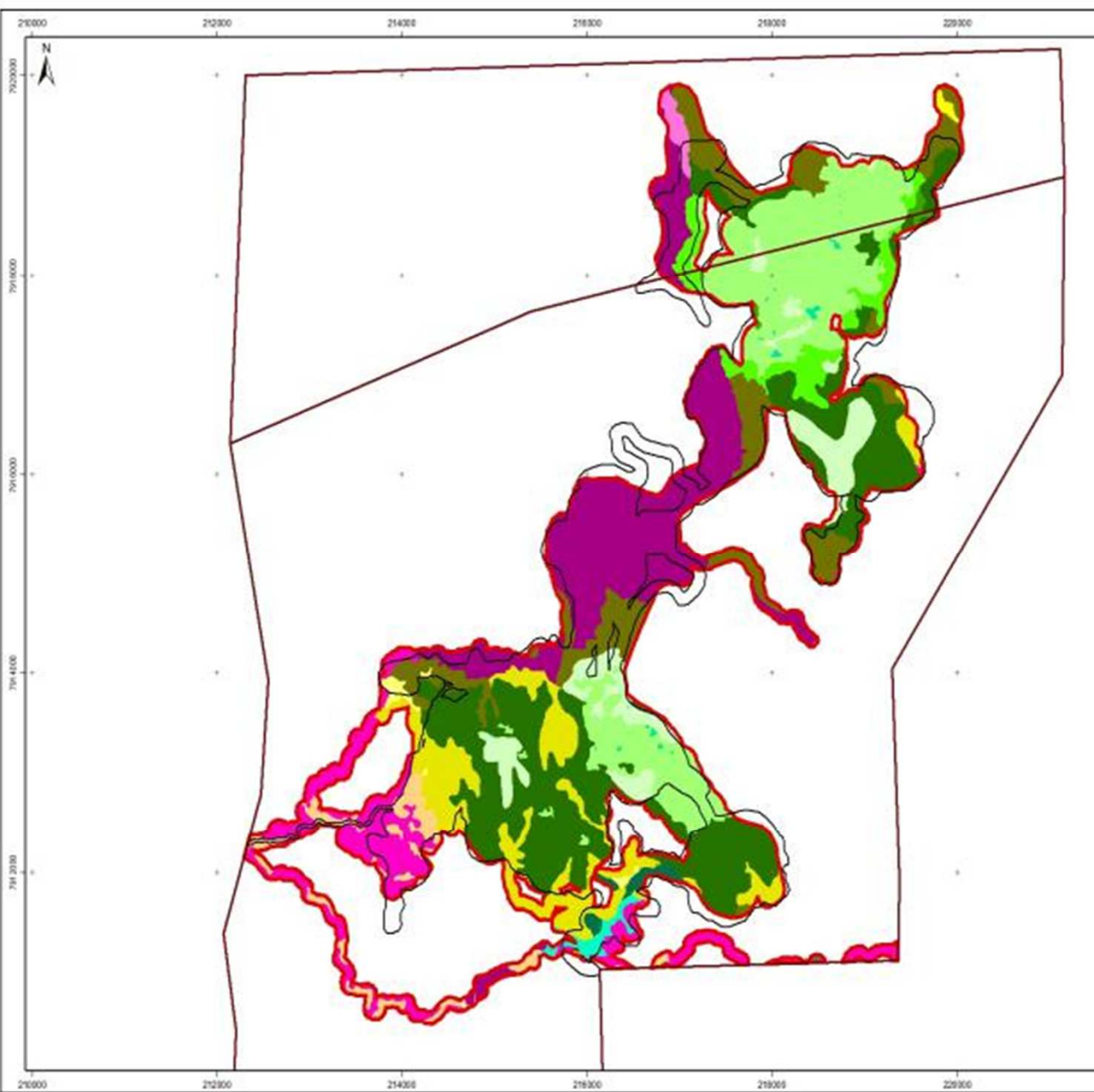


Minimize - Paced directional clearing



Restore - Mine site plan

RESIDUAL LOSSES DOCUMENTED



Malagasy Nature

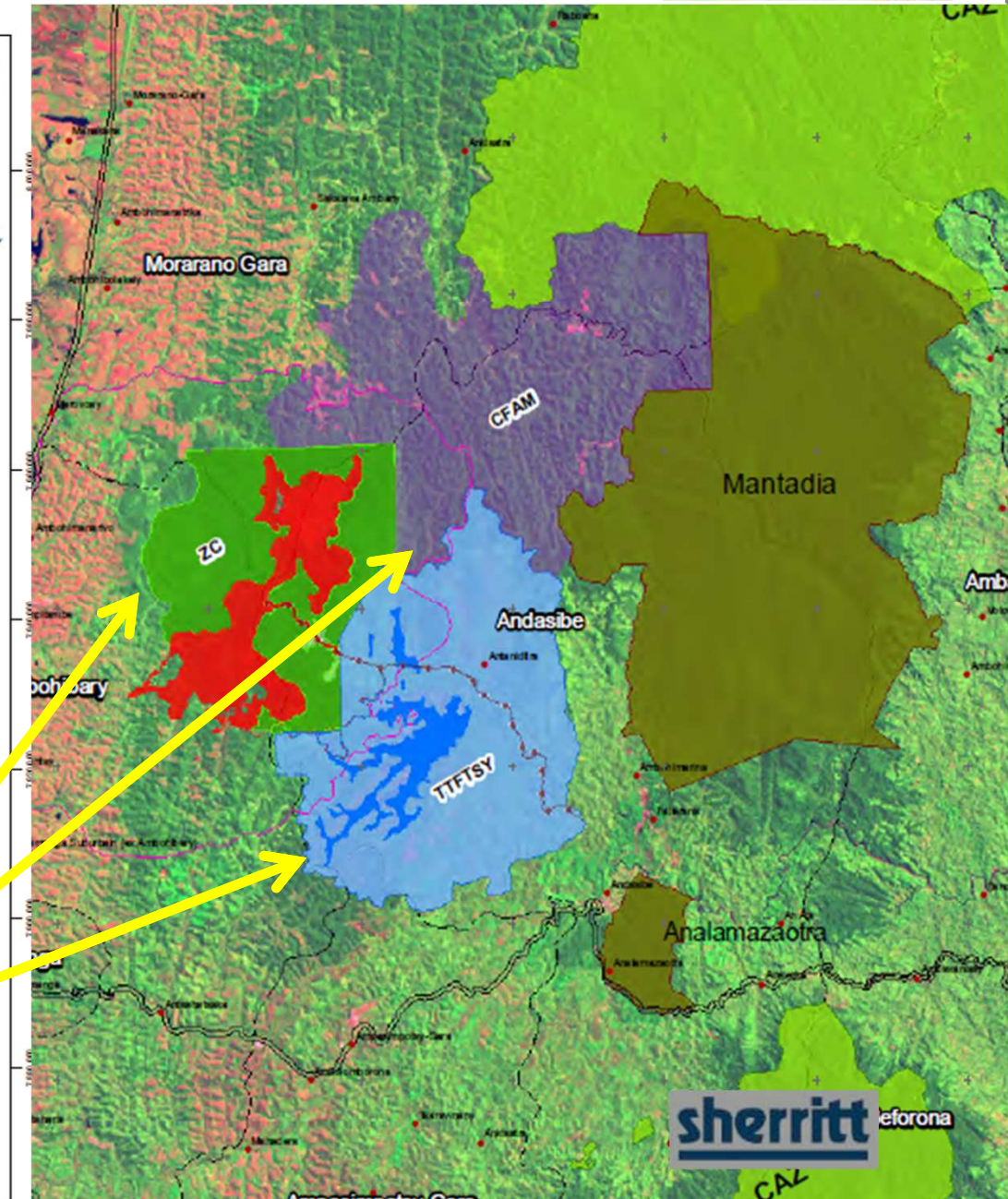
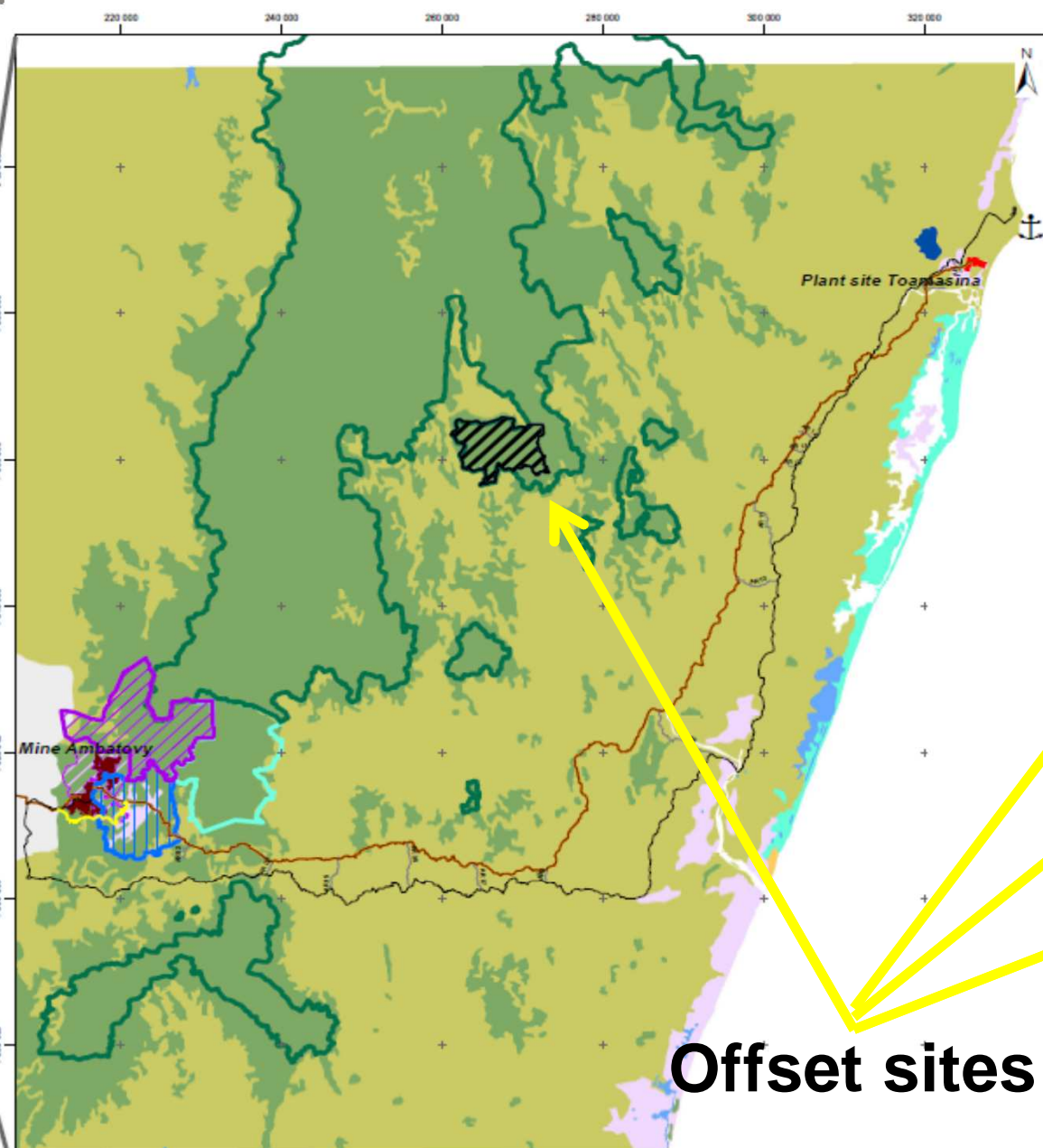
**Biodiversity, exploration, and conservation
of the natural habitats associated
with the Ambatovy project**

Editors: Steven M. Goodman & Vanessa Mass



sherritt

LANDSCAPE APPROACH



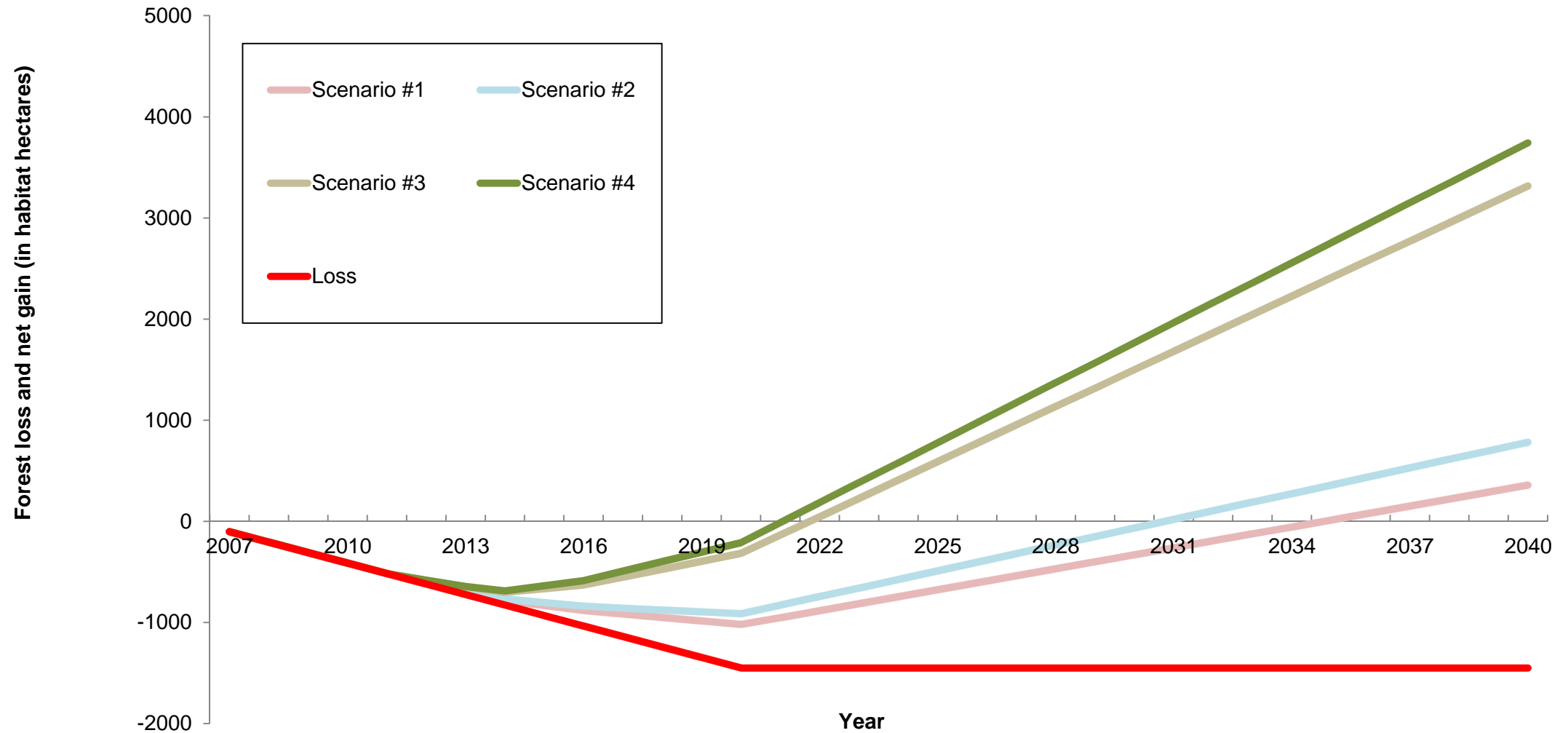
Offset sites

AVERTED LOSS SCENARIOS 1 – 4



Forest type	Loss (hh)	Averted Loss by 2040 (hh) Scenario 1 – low background rate, low success Scenario 4 – high background rate, high success				Potential to achieve NNL by 2040
		1	2	3	4	
Azonal	- 740	50	89	125	163	No NNL
Transition	- 175	93	110	259	275	3 & 4 – NNL
Zonal	- 534	1,663	2,033	4,381	4,753	NNL/NG
Total	-1,467	1,807	2,232	4,765	5,191	NNL/NG
Net Gain		+ 340	+ 765	+ 3,298	+ 4,294	

LOSS GAIN PROJECTIONS



CONCLUSION & NEXT STEPS



- Mitigation hierarchy is the foundation for NNL
- Scope for innovation in all steps of the hierarchy
- *Demonstrating NNL* scientifically is challenging, requiring continuous expert assistance
- *Ensuring sustainability* of offsets is another major long term challenge

NEXT STEPS

- Finalise offset design (critical habitat, leakage, social benefit mechanism through ecosystem services, monitoring, regional aquatic surveys)
- Ensure legal security of all offset sites
- Continue stakeholder engagement, establish governance systems and livelihoods improvement
- Develop long-term financing mechanisms

RECOMMENDATIONS



- **Apply mitigation hierarchy**
- **Use a landscape approach**
- **Invest in regional biodiversity & social baseline surveys**
- **Consider sustainability early in design process**
- **Engage key stakeholders early & communication**
- **Generate livelihood benefits from ecosystem services of the offset**
- **Ensure coordinated social and environmental programs**