

Supplementary Material

Priority areas and implementation of ecological corridor through forest restoration to safeguard biodiversity

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Table S1 Land use and cover types recorded in the study area.

Land use and land cover	Hectare	Percentage (%)
Pasture	565828,88	39
Sugarcane	366367,59	25
Forest	185747,39	13
Urban Infrastructure	24464,35	2
River, Lake and Ocean	24193,82	2
Others		
Mosaic of Agriculture and Pasture	145735,43	10
Other Temporary Crops	123461,51	8
Savanna Formation	19514,53	1
Beach and Dune	4730,05	0
Mangrove	4211,22	0
Other Non-Forest Native Formation	2609,05	0
Other Non Vegetated Area	575,68	0
Aquaculture	35,34	0
Salt Flat	60,07	0

Table S2 Identification (Id), size (ha) and location (decimal degrees) of the thirteen priority

21 forest fragments for the study area. Categories of conservation units according to Brazilian
 22 legislation: APA = Environmental Protection Area (in Portuguese, Área de Proteção
 23 Ambiental); APP = Permanent Preservation Area (in Portuguese, Área de Preservação
 24 Permanente); ESEC = Ecological Station (in Portuguese, Estação Ecológica); REBIO =
 25 Biological Reserve (in Portuguese, Reserva Biológica); RL = Legal Reserve (in Portuguese,
 26 Reserva Legal); RPPN = Private Natural Heritage Reserve (in Portuguese, Reserva Particular
 27 do Patrimônio Natural).

Fragment Id	Fragment size	Geographic coordinates		Fragment name
		Longitude	Latitude	
1	1,636.1	-35.216559°	-8.894179°	RPPN Eco Fazenda Morim/RL locais
2	2,418.7	-35.365161°	-9.221726°	RL/APP private
3	4,350.5	-36.423631°	-9.236324°	REBIO Pedra Talhada
4	1,543.7	-36.069309°	-8.925022°	RL/APP Serra Grande
5	3,784.8	-35.849775°	-9.013029°	RL/APP Coimbra
6	11,691.2	-35.896117°	-9.186831°	APA/ESEC Murici
7	6,599.6	-35.612793°	-9.424574°	RPPN Carlos Lyra/RPPN Placas
8	1,518.0	-35.743227°	-9.509216°	RL/APP private
9	1,943.4	-35.902415°	-9.527661°	RPPN Mata do Cedro
10	1,806.3	-35.966321°	-9.772597°	RL/APP private
11	1,765.4	-36.054924°	-9.907802°	RL/APP private
12	1,843.1	-36.123073°	-9.944656°	RL/APP private
13	1,927.3	-36.158540°	-10.017720°	RL/APP private

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29 **Table S3** Land use and cover conflicts in Permanent Preservation Areas (PPAs) and Legal
 30 Reserves (LRs) (% and ha) for each ecological corridor established between priority fragments
 31 in the study area.

Land use and cover classes	PPA		LR	
	%	ha	%	ha
<i>Corridor I</i>				
Pasture	7.16	2.44	23.10	0.61
Sugarcane	0.64	0.22		
Mosaic agriculture and crops	14.33	4.88	65.90	1.74
Natural vegetation	77.85	26.51	10.98	0.29
Total		34.05		2.64
<i>Corridor II</i>				
Pasture			4.07	1.33
Mosaic agriculture and crops			6.53	2.13
Natural vegetation			89.38	29.15
Total				32.61

<i>Corridor III</i>				
Pasture	18.03	0.46	7.33	2.38
Sugarcane			1.10	0.36
Mosaic agriculture and crops	12.15	0.31	6.16	2.00
Natural vegetation	69.80	1.78	85.39	27.72
Total		2.55		32..46
<i>Corridor IV</i>				
Pasture	21.78	0.22	4.08	1.38
Sugarcane	13.86	0.14	1.24	0.42
Mosaic agriculture and crops	42.57	0.43	10.79	3.65
Natural vegetation	21.79	0.22	83.88	28.37
Total		1.01		33.82
<i>Corridor V</i>				
Pasture	100	1.52	1.82	0.20
Mosaic agriculture and crops			0.27	0.03
Natural vegetation			97.89	10.70
Total		1.52		10.93

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33 **Table S4** Values used for Least Cost Path analysis. The weights for each class (1-9 scale) and
34 for each layer (%) were used in the Spatial Analyst tool, which considers different types of costs
35 over a continuous surface. The same class weight values were used in the Linkage Mapper tool
36 to create the resistance surface.

Layer	Layer weight	Class	Class weight	Justification
Permanent Preservation Area (PPA) and Legal Reserves (LR)	15%	No	9	Appropriate for corridors and low implementation cost - Sparovek et al. (2012)
		Yes	1	
Predefined Forest Fragments	20%	No	9	Important for the maintenance of local and regional species diversity - Pardini et al. (2005); Step-stones - Garcez da Rocha et al. (2021)
		Yes	1	
Paved Roads	20%	No	1	High negative impacts - barrier, disturbance - Galantino et al. (2022); Ascensão et al.
		Yes	9	

(2017)

		Natural	1	
		Vegetation		
		Pasture	5	Urban areas constitute barriers
		Sugarcane	5	for the majority of species -
		Urban	9	McKinney (2002); Fauna
Land use and cover	45%	infrastructure		moves preferentially through
		Mosaic		natural areas and areas with
		agriculture and	3	less anthropogenic
		crops		disturbances - Umetsu and
		River	5	Pardini (2007)
		Others	3	

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38 **Table S5** A comprehensive list of all small terrestrial mammal species to the Pernambuco
39 Endemism Center in the state of Alagoas, Brazil. The list has been adapted from the original
40 publication by Feijó et al. (2023).

Species

DIDELPHIMORPIA

Didelphidae

Caluromys philander (Linnaeus, 1758)

Marmosa murina (Linnaeus, 1758)

Marmosa demerarae (Thomas, 1905)

Monodelphis americana (Müller, 1776)

Monodelphis domestica (Wagner, 1842)

Cryptonanus agricolai (Moojen, 1943)

Gracilinanus agilis (Burmeister, 1854)

LAGOMORPHA

Leporidae

Sylvilagus brasiliensis (Linnaeus, 1758) *

RODENTIA

Caviidae

Cavia aperea Erxleben, 1777

Galea spixii (Wagler, 1831)

Kerodon rupestris (Wied- Neuwied, 1820)

Echimyidae

Phyllomys sp.

Cricetidae

Akodon cursor (Winge, 1887)

Necomys lasiurus (Lund, 1840)

Oxymycterus dasytrichus (Schinz, 1821)

Cerradomys langguthi Percequillo, Hingst-Zaher & Bonvicino, 2008

Holochilus oxe Prado, Knowles & Percequillo, 2021

Hylaeamys oniscus (Thomas, 1904) *

Nectomys squamipes (Brants, 1827)

Oecomys catherinae Thomas, 1909

Oligoryzomys nigripes (Olfers, 1818)

Oligoryzomys stramineus Bonvicino & Weksler, 1998

Oligoryzomys mottogrossae (J. A. Allen, 1916)

Rhipidomys mastacalis (Lund, 1840)

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