

**Dispersal and space use of captive-reared and wild-rehabilitated Harpy Eagles released in Central American landscapes: Implications for reintroduction and reinforcement management**

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Table S1. Maximum post-release dispersal distance (km), core areas (50% AKDE, km<sup>2</sup>) and home ranges (95% AKDE, km<sup>2</sup>) of captive-reared and wild-rehabilitated Harpy Eagles (*Harpia harpyja*) released in Central American forest between 2002 and 2009. Numbers in parentheses correspond to 95% nonparametric bootstrap confidence intervals. *n* is the number of individual in each group.

	<i>n</i>	Dispersal	Core area	Home range
Adult	18	41.5 (31.2-54.2)	392.3 (232-730)	1645 (990-3021)
Juvenile	18	13.9 (7.6-34.7)	13.12(6-24)	59.1 (28-113)
Female	20	29.1 (21.2-38.9)	320.3 (168-650)	1327.9 (711-2745)
Male	16	29.8 (17.2-54.3)	120 (26-368)	534.7 (118-1348)
6-7 m	10	28 (17.5-43.6)	383.2 (129-1085)	1598.8 (593-4812)
18-23 m	11	27.2 (17-43.9)	238.8 (93-504)	981.6 (384-2040)
>30 m	10	43.8 (22.7-78.8)	188.8 (64-403)	815.5 (292-1779)
Adult Wild-rehabilitated	5	14.6 (10.4-19.8)	42.9 (19-77)	205 (90-356)
Hard	17	46.5 (35-63.3)	433 (244-875)	1825.2 (1046-3608)
Soft	19	11.8 (7.3-19.5)	68.6 (21-219)	281.8 (87-872)

AKDE = autocorrelated kernel density estimation

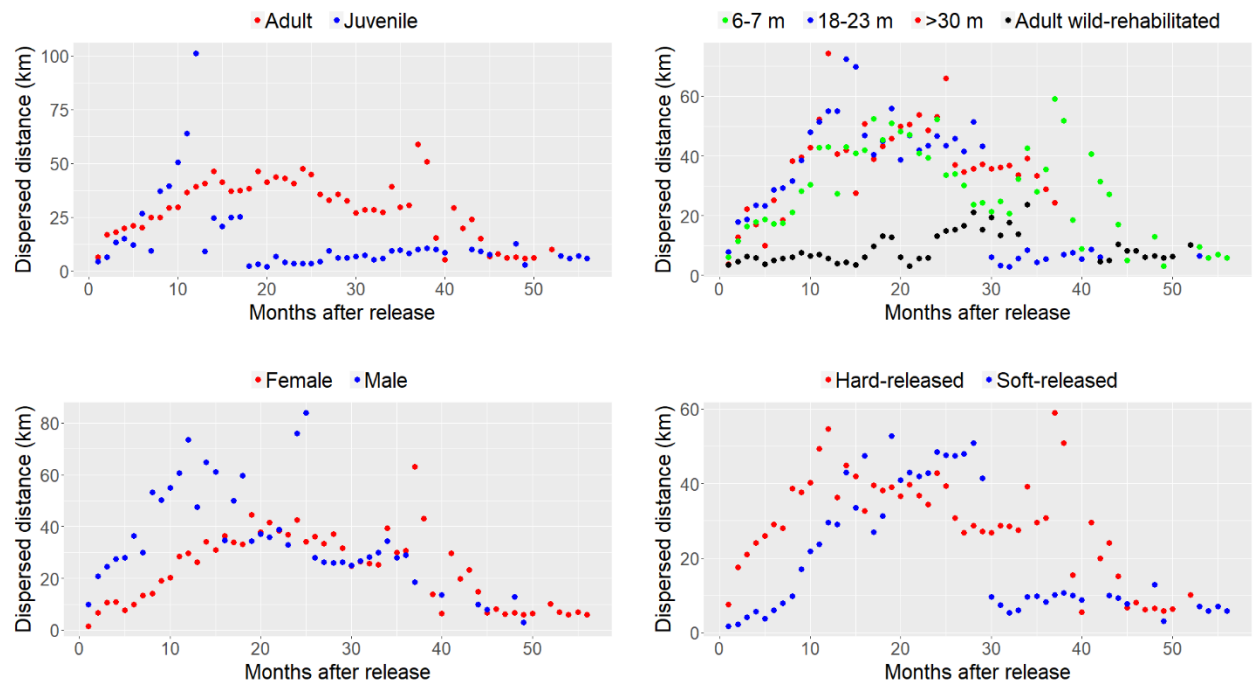


Figure S1. Average net-squared displacement of 36 captive-reared and wild-rehabilitated Harpy Eagles (*Harpia harpyja*) released in Central American forest between 2002 and 2009. Each point represents the average dispersal distance by month.

Table S2. List of the telemetry-tracked Harpy Eagles released in Central America with information on bird ID and and year of study, tracking time in days (TTd), home ranging behavior (HRB), number of telemetry fixes (Fixes), sex, release site, release method, age at release, age when included in the analysis, dispersed distance in km, core are in km<sup>2</sup>, home range in km<sup>2</sup>, home range protected in km<sup>2</sup> and proportion of home range protected in percentage.

Bird and Year	TTd	HRB	Fixes	Sex	Release Site	Release Method	Age at Release	Dispersed Distance	Core Area	Home Range	Home Range Protected	Proportion of Home Range Protected
AT 2007	362	Yes	327	Male	Belize	Hard-release	6-7 months	61.4	180.3	1243.7	307.0	24.7
BC 2008	335	Yes	65	Male	Belize	Hard-release	18-23 months	28.0	10.5	52.5	0.0	0.0
BM 2010	361	Yes	341	Male	Belize	Hard-release	18-23 months	106.3	1066.4	4322.8	2314.5	53.5
BN 2008	264	Yes	125	Male	Panama	Soft-release	18-23 months	15.2	2.79	18.6	0.0	0.0
BY 2004	264	Yes	9	Male	Panama	Soft-release	6-7 months	2.7	0.5	2.7	2.7	100.0
BY 2005	334	Yes	18	Male	Panama	Soft-release	6-7 months	4.7	0.9	4.9	4.8	97.6
BZ 2004	340	Yes	9	Male	Panama	Soft-release	6-7 months	1.2	0.3	1.4	1.4	100
BZ 2005	358	Yes	40	Male	Panama	Soft-release	6-7 months	16.6	36.5	135.09	110.6	81.9
CN 2004	348	Yes	4	Male	Panama	Soft-release	6-7 months	1.5	0.9	3.2	3.2	100
CN 2005	350	Yes	24	Male	Panama	Soft-release	6-7 months	13.1	20.1	74.6	61.4	82.4
CN 2006	284	Yes	20	Male	Panama	Soft-release	6-7 months	13.5	8.6	36.1	27.1	75.0
CP 2007	181	Yes	6	Male	Panama	Soft-release	>30 months	8.4	17.8	82.9	61.1	73.7
CP 2008	194	Yes	12	Male	Panama	Soft-release	>30 months	8.7	36.3	145.9	89.8	61.5
CU 2007	191	Yes	9	Male	Panama	Soft-release	>30 months	12.8	11.4	55.07	30.0	54.5
DM 2005	220	Yes	74	Male	Belize	Hard-release	>30 months	16.2	40.4	234.7	234.7	100
DT 2007	362	Yes	108	Male	Belize	Hard-release	>30 months	151.0	926.7	4077.4	3563.3	87.4
DT 2008	308	Yes	322	Male	Belize	Hard-release	>30 months	51.2	35.1	164.2	77.2	47.0
ET 2003	290	Yes	7	Male	Panama	Soft-release	6-7 months	0.4	0.05	0.1	0.1	100
ET 2004	321	Yes	10	Male	Panama	Soft-release	6-7 months	1.4	0.3	1.8	1.8	100
GB 2006	206	Yes	34	Female	Panama	Soft-release	>30 months	2.6	0.8	4.1	4.1	100
GD 2006	187	Yes	65	Female	Panama	Soft-release	>30 months	2.9	2.2	8.5	8.5	100
GD 2007	283	Yes	99	Female	Panama	Soft-release	>30 months	5.9	3.4	16.08	16.1	100
HE 2006	325	Yes	34	Female	Panama	Hard-release	Wild-rehabilitated	4.0	3.3	14.3	13.8	96.2
HE 2007	287	Yes	23	Female	Panama	Hard-release	Wild-rehabilitated	5.3	2.2	10.7	10.7	100
HH 2006	328	Yes	92	Female	Panama	Hard-release	18-23 months	6.7	3.2	23.07	22.4	97.3
HH 2007	364	Yes	110	Female	Panama	Hard-release	18-23 months	6.9	6.5	29.7	26.6	89.5
HH 2008	361	Yes	97	Female	Panama	Hard-release	18-23 months	9.8	20.6	79.01	76.2	96.4
HH 2009	213	Yes	40	Female	Panama	Hard-release	18-23 months	11.8	20.6	80.3	62.1	77.4
HS 2005	191	Yes	6	Female	Belize	Hard-release	18-23 months	47.9	737.3	3134.2	524.5	16.7
KC 2009	302	Yes	228	Female	Panama	Soft-release	18-23 months	55.0	1114.2	4684.8	1559.3	33.3
KC 2010	358	Yes	295	Female	Panama	Soft-release	18-23 months	75.4	280.1	1043.4	399.7	38.3
KC 2011	212	Yes	166	Female	Panama	Soft-release	18-23 months	72.4	225.04	863.1	309.7	35.9
KD 2007	330	Yes	40	Female	Panama	Soft-release	18-23 months	5.7	6.01	20.3	16.4	80.9
KD 2008	354	Yes	39	Female	Panama	Soft-release	18-23 months	6.8	5.9	26.6	17.8	66.8
KR 2008	274	Yes	45	Male	Panama	Soft-release	>30 months	7.3	5.3	36.6	35.9	98.1
LB 2007	179	Yes	54	Female	Panama	Soft-release	18-23 months	4.1	1.1	5.9	5.9	100
LB 2008	348	Yes	30	Female	Panama	Soft-release	18-23 months	20.5	83.07	341.2	201.1	58.9
LG 2006	346	Yes	251	Female	Belize	Hard-release	>30 months	47.3	886.9	3565.4	1806.9	50.7
LG 2007	363	Yes	269	Female	Belize	Hard-release	>30 months	52.8	225.04	958.5	150.8	15.7
LG 2008	331	Yes	265	Female	Belize	Hard-release	>30 months	77.7	640.01	2875.09	658.8	22.9
LT 2008	269	Yes	68	Female	Panama	Soft-release	>30 months	5.7	1.1	5.4	5.4	100
LT 2009	287	Yes	44	Female	Panama	Soft-release	>30 months	3.2	0.8	4.07	4.1	100
LV 2009	295	Yes	275	Female	Panama	Hard-release	Wild-rehabilitated	10.3	22.3	91.8	75.5	82.3
LV 2010	356	Yes	314	Female	Panama	Hard-release	Wild-rehabilitated	15.9	59.5	249.7	136.0	54.4
MA 2003	234	Yes	13	Female	Panama	Soft-release	6-7 months	6.4	10.3	44.4	35.1	79.1
MA 2005	293	Yes	17	Female	Panama	Soft-release	6-7 months	11.4	46.1	226.05	123.4	54.6
MU 2008	365	Yes	51	Female	Belize	Hard-release	6-7 months	24.2	278.8	1108.3	294.0	26.5

Table S2 (cont.)

Bird and Year	TTd	HRB	Fixes	Sex	Release Site	Release Method	Age at Release	Dispersed Distance	Core Area	Home Range	Home Range Protected	Proportion of Home Range Protected
MV 2006	265	Yes	53	Female	Belize	Hard-release	Wild-rehabilitated	9.8	25.2	155.5	128.8	82.8
MW 2005	296	Yes	56	Female	Panama	Hard-release	Wild-rehabilitated	28.2	67.8	415.3	335.6	80.8
MW 2006	195	Yes	69	Female	Panama	Hard-release	Wild-rehabilitated	17.8	120.05	498.1	437.9	87.9
MX 2005	313	Yes	114	Female	Belize	Hard-release	6-7 months	46.1	307.03	1202.4	616.4	51.3
MX 2007	254	Yes	122	Female	Belize	Hard-release	6-7 months	96.0	1447.6	6466.6	3405.3	52.7
MY 2007	362	Yes	207	Female	Belize	Hard-release	6-7 months	107.7	3558.05	14033.1	8331.1	59.4
MY 2008	363	Yes	171	Female	Belize	Hard-release	6-7 months	56.1	636.1	2586.3	1218.4	47.1
MY 2009	214	Yes	74	Female	Belize	Hard-release	6-7 months	45.2	572.4	2392.8	1273.9	53.2
AC 2005	88	No	34	Male	Belize	Hard-release	Wild-rehabilitated	23.0	NA	NA	NA	NA
AT 2006	151	No	159	Male	Belize	Hard-release	6-7 months	22.5	NA	NA	NA	NA
BN 2007	107	No	51	Male	Panama	Soft-release	18-23 months	10.7	NA	NA	NA	NA
BZ 2003	168	No	6	Male	Panama	Soft-release	6-7 months	1.3	NA	NA	NA	NA
CN 2003	163	No	8	Male	Panama	Soft-release	6-7 months	0.9	NA	NA	NA	NA
CZ 2005	349	No	175	Male	Belize	Hard-release	>30 months	179.7	NA	NA	NA	NA
DK 2006	62	No	9	Male	Panama	Soft-release	18-23 months	3.1	NA	NA	NA	NA
DK 2008	104	No	8	Male	Panama	Soft-release	18-23 months	14.7	NA	NA	NA	NA
DT 2006	359	No	82	Male	Belize	Hard-release	>30 months	111.4	NA	NA	NA	NA
ET 2005	99	No	7	Male	Panama	Soft-release	6-7 months	5.9	NA	NA	NA	NA
HC 2007	139	No	67	Female	Panama	Soft-release	18-23 months	8.5	NA	NA	NA	NA
HE 2009	131	No	34	Female	Panama	Hard-release	Wild-rehabilitated	11.2	NA	NA	NA	NA
HE 2010	152	No	17	Female	Panama	Hard-release	Wild-rehabilitated	10.2	NA	NA	NA	NA
HS 2006	292	No	8	Female	Belize	Hard-release	18-23 months	60.2	NA	NA	NA	NA
KK 2005	93	No	9	Female	Panama	Soft-release	6-7 months	6.2	NA	NA	NA	NA
LA 2007	37	No	16	Female	Panama	Soft-release	18-23 months	1.9	NA	NA	NA	NA
LV 2011	363	No	334	Female	Panama	Hard-release	Wild-rehabilitated	25.9	NA	NA	NA	NA
MU 2007	62	No	66	Female	Belize	Hard-release	6-7 months	21.2	NA	NA	NA	NA
MX 2006	364	No	159	Female	Belize	Hard-release	6-7 months	55.1	NA	NA	NA	NA
MY 2006	362	No	165	Female	Belize	Hard-release	6-7 months	105.7	NA	NA	NA	NA