Figure 1. Location of three study sites (park = square, agricultural land = circle and forest = triangle) where red fox and domestic cat scats were recovered during two-years of field work over three main land cover use (agricultural, urban and natural) reclassified from Corine Land Cover 2012.

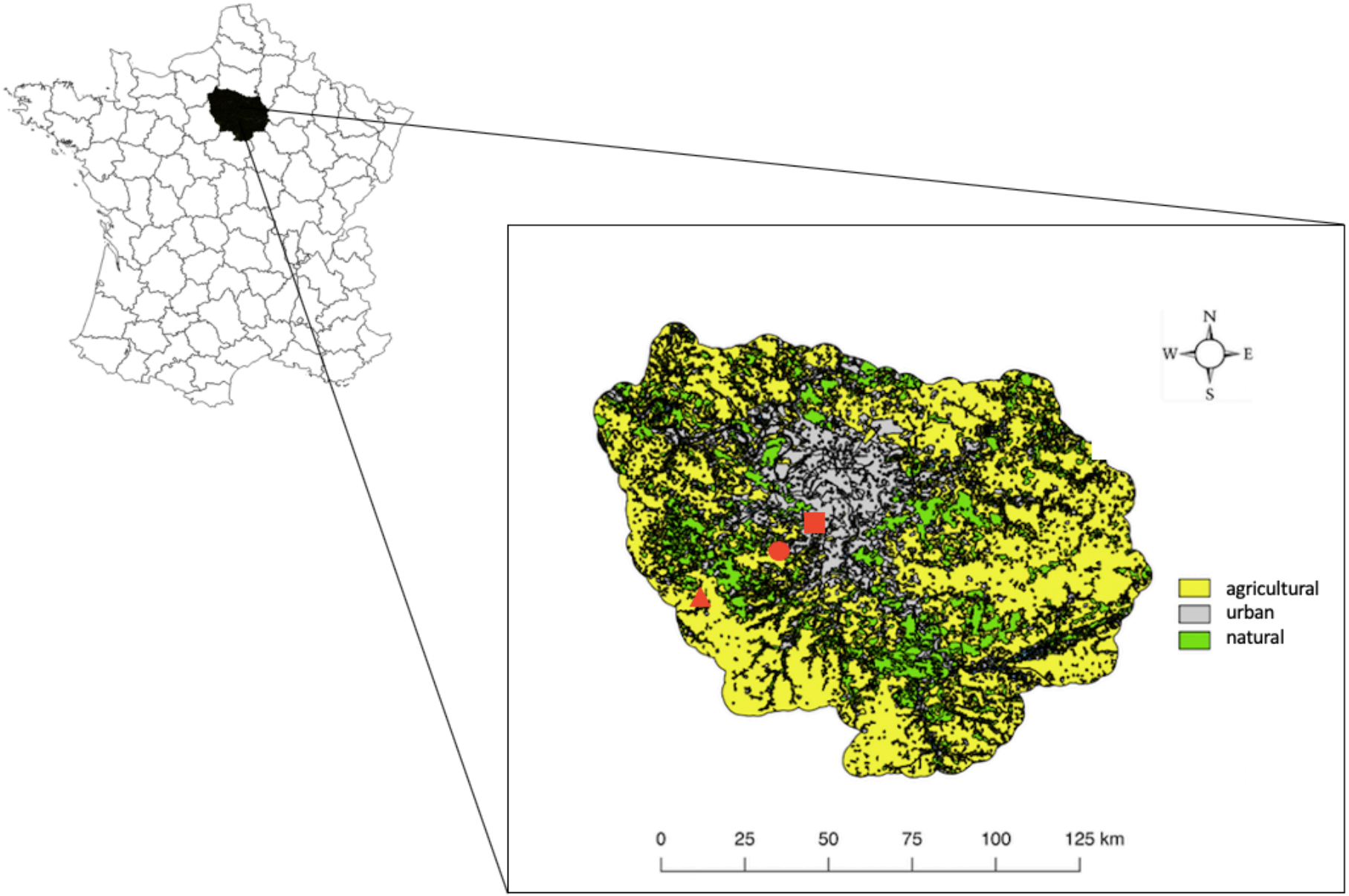

Table 1. Minimum number of individual prey in each scat ($prey_{MNI}$) and ingested prey biomass in each scat ($prey_{IBS}$) (in brackets) divided by total $prey_{MNI}$ and $prey_{IBS}$ respectively. Data is expressed in percentage by predator species (red fox, domestic cat), study sites (park, agricultural land, forest) and seasons (autumn, winter, spring, summer).

predator	red fox											
habitat	park				agricultural land				forest			
season	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer
Leporidae	0.00	0.00 (0.00)	0.00 (0.00)	0.29 (10.35)	1.81 (37.40)	1.03 (19.60)	0.51 (11.70)	1.61 (29.99)	0.96 (48.71)	0.57 (26.11)	0.49 (98.48)	0.27 (19.95)
Microtidae	0.17 (1.09)	0.33 (0.00)	0.43 (0.00)	0.29 (0.21)	2.54 (0.49)	18.47 (7.86)	19.41 (12.35)	9.24 (4.44)	0.48 (0.00)	4.90 (6.03)	1.23 (0.00)	5.20 (11.05)
Muridae	0.171 (0.00)	0.33 (0.00)	0.43 (0.00)	0.14 (0.28)	0.36 (1.45)	3.08 (15.29)	5.11 (29.94)	2.41 (9.93)	0.48 (0.00)	5.65 (52.73)	0.49 (0.00)	1.64 (15.92)
Soricidae	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.51 (0.00)	1.02 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	1.64 (0.00)
Rodentia	0.69 (25.00)	2.01 (7.27)	0.85 (0.89)	0.58 (0.64)	4.35 (3.29)	3.08 (2.74)	0.51 (0.00)	2.28 (2.67)	1.44 (4.08)	1.32 (0.00)	1.23 (1.09)	4.10 (1.78)
LM birds	0.26 (72.92)	0.00 (0.00)	4.26 (98.97)	1.66 (60.22)	2.54 (49.99)	1.03 (12.83)	1.02 (23.43)	2.55 (37.23)	0.00 (0.00)	0.38 (11.41)	0.00 (0.00)	0.55 (38.01)
Small birds	0.51 (0.00)	0.33 (0.00)	0.85 (0.00)	0.58 (0.00)	0.73 (0.00)	0.51 (0.00)	1.02 (0.00)	1.21 (0.44)	0.96 (0.00)	0.94 (0.00)	0.74 (0.00)	0.00 (0.00)
Birds unidentified	0.00 (0.00)	0.67 (85.06)	0.00 (0.00)	0.50 (13.20)	0.73 (7.28)	2.05 (39.39)	1.53 (21.31)	0.54 (5.73)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.27 (13.03)
Coleoptera	1.03 (0.00)	0.67 (0.04)	3.40 (0.03)	12.54 (0.08)	0.00 (0.00)	1.54 (0.00)	2.55 (0.00)	5.36 (0.02)	0.00 (0.00)	5.65 (0.08)	29.32 (0.06)	41.29 (0.01)
Hymenoptera	0.51 (0.00)	0.00 (0.00)	0.85 (0.00)	2.38 (0.00)	0.00 (0.00)	0.00 (0.00)	2.55 (0.00)	3.89 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.82 (0.00)
Dermaptera	4.46 (0.00)	2.01 (0.00)	0.85 (0.00)	0.87 (0.00)	0.36 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.19 (0.00)	0.00 (0.00)	1.37 (0.00)
Orthoptera	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.07 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.13 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.82 (0.00)
Heteroptera	0.17 (0.00)	0.00 (0.00)	0.00 (0.00)	0.58 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.27 (0.00)	0.00 (0.00)	0.00 (0.00)	0.25 (0.00)	0.00 (0.00)
Lepidoptera	1.46 (0.00)	0.67 (0.00)	0.85 (0.00)	1.08 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	1.44 (0.00)	0.00 (0.00)	2.46 (0.00)	0.55 (0.00)
Arachnida	0.09 (0.00)	2.34 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.27 (0.00)
Earthworms	89.64 (1.00)	76.95 (4.97)	87.14 (0.11)	29.77 (0.42)	61.36 (0.02)	36.15 (1.77)	64.03 (0.48)	14.49 (0.04)	26.12 (0.00)	79.42 (1.01)	63.78 (0.37)	29.18 (0.00)
Invert. unidentified	0.51 (0.00)	0.00 (0.00)	0.00 (0.00)	0.14 (0.00)	0.00 (0.00)	2.05 (0.02)	0.51 (0.00)	0.40 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.82 (0.00)
Small fruits	0.09 (0.00)	13.38 (0.00)	0.00 (0.00)	48.45 (14.40)	24.68 (0.08)	30.28 (0.37)	0.00 (0.00)	55.46 (9.41)	63.42 (22.11)	0.19 (0.02)	0.00 (0.00)	11.20 (0.25)
Large fruits	0.23 (0.00)	0.30 (2.66)	0.09 (0.00)	0.08 (0.00)	0.54 (0.00)	0.22 (0.13)	0.22 (0.80)	0.17 (0.09)	4.70 (25.00)	0.80 (2.61)	0.00 (0.00)	0.00 (0.00)
Refuse*	0.00	6.45	7.69	8.04	0.00	0.00	0.00	2.74	0.00	2.50	0.00	1.33

*percentage of scats with presence of non-organic refuse (i.e., plastic, foil paper)

predator	domestic cat											
habitat	park				agricultural land				forest			
season	autumn	winter	spring	summer	autumn	winter	spring	summer	autumn	winter	spring	summer
Leporidae	-	-	-	-	8.95 (66.58)	5.33 (52.06)	16.15 (77.08)	7.71 (36.64)	2.49 (33.33)	2.16 (33.33)	-	0.00 (0.00)
Microtidae	-	-	-	-	14.64 (0.31)	15.58 (0.56)	21.54 (0.55)	33.72 (2.41)	2.49 (0.00)	30.19 (0.00)	-	51.76 (16.01)
Muridae	-	-	-	-	3.25 (0.31)	2.46 (1.62)	4.04 (0.27)	12.52 (6.08)	2.49 (0.00)	2.16 (0.00)	-	27.06 (69.53)
Soricidae	-	-	-	-	0.00 (0.00)	0.00 (0.00)	1.35 (0.00)	3.85 (0.09)	0.00 (0.00)	4.31 (0.00)	-	0.00 (0.00)
Rodentia	-	-	-	-	3.25 (6.25)	3.28 (0.58)	4.04 (0.00)	2.89 (0.34)	0.00 (0.00)	6.47 (2.98)	-	0.00 (0.00)
LM birds	-	-	-	-	4.07 (26.10)	4.92 (44.63)	6.73 (19.73)	10.60 (47.16)	0.00 (0.00)	4.31 (63.68)	-	1.18 (9.13)
Small birds	-	-	-	-	0.00 (0.00)	2.46 (0.00)	5.38 (0.11)	1.93 (0.30)	2.49 (0.00)	0.00 (0.00)	-	2.35 (0.00)
Birds unidentified	-	-	-	-	0.00	0.41 (0.48)	1.35 (2.21)	1.93 (6.89)	4.97 (66.67)	0.00 (0.00)	-	1.18 (5.27)
Coleoptera	-	-	-	-	2.44 (0.00)	0.82 (0.00)	5.38 (0.00)	6.74 (0.01)	14.91 (0.00)	0.00 (0.00)	-	10.59 (0.04)
Hymenoptera	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	5.78 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Dermaptera	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Orthoptera	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.96 (0.00)	0.00 (0.00)	0.00 (0.00)	-	4.71 (0.00)
Heteroptera	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Lepidoptera	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Arachnida	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Earthworms	-	-	-	-	60.32 (0.07)	64.47 (0.08)	34.04 (0.04)	4.19 (0.02)	65.21 (0.00)	47.44 (0.00)	-	1.18 (0.02)
Invert. unidentified	-	-	-	-	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	2.89 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.00 (0.00)
Small fruits	-	-	-	-	1.63 (0.00)	0.00 (0.00)	0.00 (0.00)	3.85 (0.05)	4.97 (0.00)	0.08 (0.00)	-	0.00 (0.00)
Large fruits	-	-	-	-	1.44 (0.37)	0.27 (0.00)	0.00 (0.00)	0.43 (0.00)	0.00 (0.00)	2.88 (0.00)	-	0.00 (0.00)
Refuse*	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	13.33	0.00	0.00	0.00

*percentage of scats with presence of non-organic refuse (i.e., plastic, foil paper)

Table 2. Multivariate Generalized Linear Model results of red fox diet (a) and domestic cat (b) composition ($prey_{IBS}$) across study sites (park, agricultural land and forest) and seasons (autumn, winter, spring and summer). Res.df = residual degrees of freedom, df = degree of freedom, Dev = deviation test statistic, Pr = p-value. P-values were calculated using 999 resampling iterations via PIT-trap resampling (to account for correlation in testing). Bold indicates $p < 0.05$.

a)

Multivariate test:

	Res.Df	Df.diff	Dev	Pr(>Dev)
intercept	521			
site	519	2	135.6	**0.001**
season	516	3	187.4	**0.001**
site : season	510	6	210.6	**0.001**

Univariate tests:

	Leporidae		Microtidae		Muridae		Soricidae		Large-medium birds		Small birds		Coleoptera		Hymenoptera	
	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)
intercept																
site	2.689	0.133	41.774	**0.001**	5.904	**0.019**	7.602	**0.019**	7.308	**0.019**	0.135	0.731	43.400	**0.001**	0.000	1.000
season	0.730	0.756	4.756	0.428	2.041	0.751	2.533	0.751	0.883	0.756	1.061	0.753	43.284	**0.001**	0.000	1.000
site : season	13.497	0.221	5.738	0.671	4.062	0.671	11.437	0.295	26.131	**0.003**	13.488	0.221	23.043	**0.015**	0.000	1.000

	Dermaptera		Orthoptera		Heteroptera		Lepidoptera		Arachnida		Earthworms		Small fruits		Large fruits	
	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)
intercept																
site	1.792	0.562	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	16.667	**0.001**	7.354	**0.019**	0.942	0.562
season	2.976	0.751	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	40.795	**0.001**	81.679	**0.001**	6.704	0.203
site : season	0.004	0.671	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	9.135	0.513	89.212	**0.001**	14.823	0.192

b)

Multivariate test:

	Res.Df	Df.diff	Dev	Pr(>Dev)
intercept	177			
site	175	2	8.36	0.232
season	172	3	43.90	**0.001**
site : season	171	2	37.50	**0.003**

Univariate tests:

	Leporidae		Microtidae		Muridae		Soricidae		Large-medium birds		Small birds		Coleoptera		Hymenoptera	
	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)
intercept																
site	3.176	0.369	1.703	0.725	1.62	0.725	0.043	0.998	0.885	0.896	0.001	0.998	0.329	0.973	0	1.000
season	2.231	0.811	3.451	0.811	2.731	0.811	3.795	0.811	0.735	0.919	1.576	0.877	0.98	0.919	0	1.000
site : season	9.179	0.060	4.132	0.469	0.427	0.933	5.788	0.334	5.023	0.371	5.886	0.334	0.704	0.933	0	1.000

	Dermaptera		Orthoptera		Heteroptera		Lepidoptera		Arachnida		Earthworms		Small fruits		Large fruits	
	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)	Dev	Pr(>Dev)
intercept																
site	0	1.000	0	1.000	0	1.000	0	1.000	0	1.000	0.014	0.998	0.014	0.998	0.574	0.943
season	0	1.000	0	1.000	0	1.000	0	1.000	0	1.000	18.072	**0.001**	7.105	0.287	3.229	0.811
site : season	0	1.000	0	1.000	0	1.000	0	1.000	0	1.000	0.019	0.988	2.229	0.688	4.115	0.469

Figure 2. Red fox and domestic cat mean diet breadth (95% CI) across habitats (park, agricultural land and forest) and seasons (autumn, winter, spring and summer). Only sample size larger than 10 scats collected per predator, site and season were analyzed.

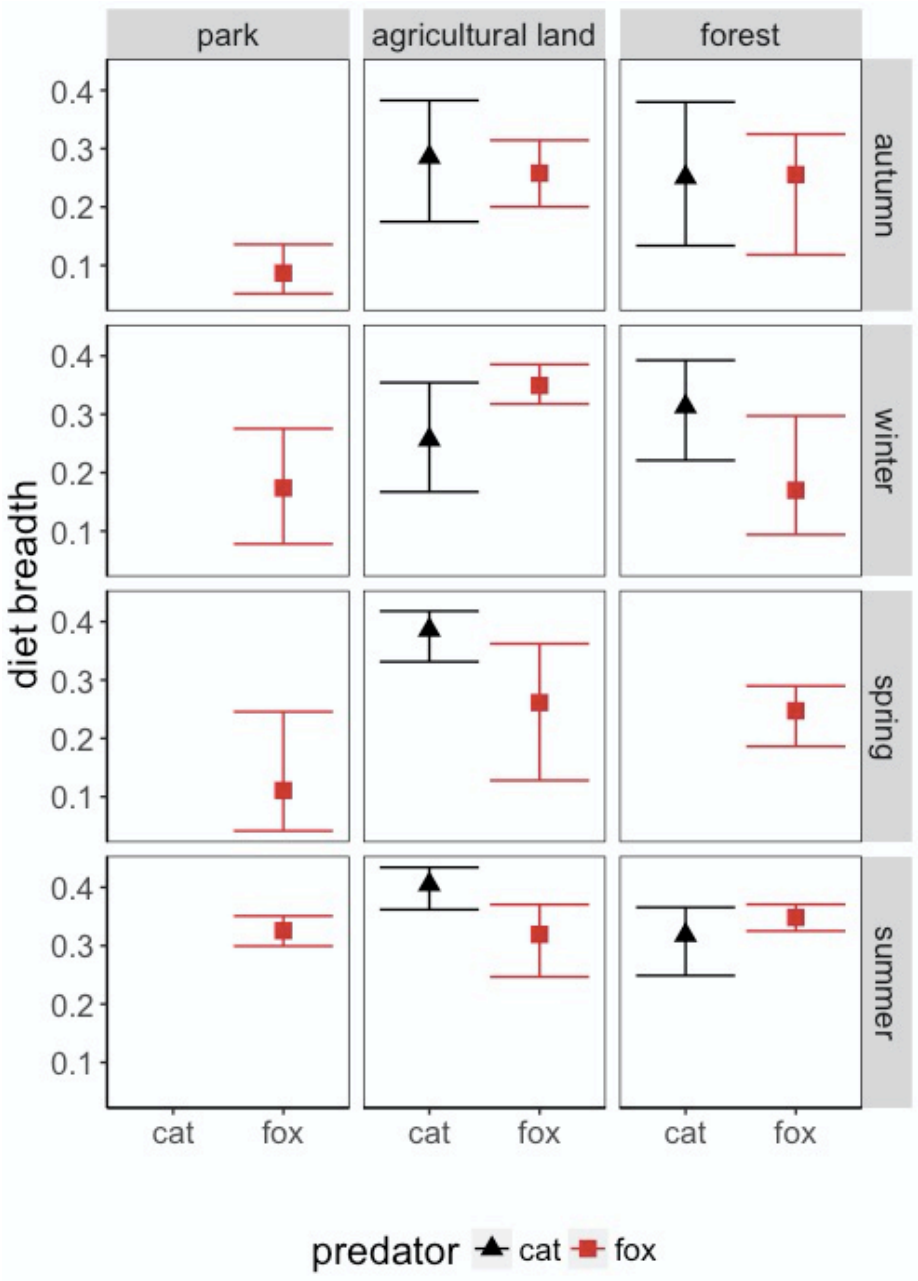

Figure 3. Nonmetric MultiDimensional Scaling (NMDS) plots, constructed from Bray-Curtis similarity matrices based on $prey_{MNI}$ data, showing diet composition of red foxes and domestic cats across seasons in studied suburban habitats: a) agricultural land and b) forest. Only sample size larger than 10 scats collected per predator, site and season were analyzed.