

Additional file 8: Narrative tables. Tables summarizing key results of the studies included in the narrative syntheses.

Table S1: Key results of the 56 studies included in the narrative synthesis of the question: Is vertebrate biodiversity in LTI verges equal to, higher, or lower than in similar habitats away from LTIs? (question Q2)

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[1]	da Silva et al., 2017)	Low	Brazil	Birds	Road	Savannah, marginal strip of the road	Savannah, 250 m or 500 m away from the road	(-) The <u>number of species</u> per sample point in each transect was lower in transects nearest to the road and higher in transects farthest from the road (text p. 3). (-) The <u>number of individuals</u> per sample point in each transect was smaller in transects nearest the road (text p. 3).	a
[2]	Webb et al., 2011)	Low	United States of America	Bird <i>Corvus corax</i>	Road	Forest, digitized surfaced roads 25 m resolution	Forest, digitized logging roads 25 m resolution	(ns) Estimators of resource coefficients were similar between surface roads and logging roads indicating that ravens similarly used them (confidence intervals do not overlap in figure 2) (<u>locations</u>).	a
[3]	Rich et al., 1994)	Low	United States of America	Birds	Road (and powerline)	Forest edges along paved secondary roads	Forest edges along unpaved roads	(-) Forest-interior Neotropical migrants as a group, and four of the nine forest-interior species that could be tested parametrically, had significantly greater relative <u>abundances</u> on edge transects along unpaved corridors than along paved road or powerline corridors (text p. 6). (ns) None of the other forest-nester species or nest predators differed significantly in relative <u>abundance</u> on forest-edge transects among corridor types (text p. 7). (+) Brown-headed Cowbirds [<i>Molothrus ater</i>] were significantly more <u>abundant</u> on forest-edge transects along paved secondary roads than along unpaved roads or powerline corridors (text p. 7).	a
[4]	Weermans and van Aarde, 2003	Low	South Africa	Birds (and rodents)	Road	Forest road edge (undisturbed forest)	Forest interior (undisturbed forest)	(+/-) Significant differences in bird <u>species assemblage</u> between edge (5-25 m from road) and core (35-125 m from road) (table 2).	a
[5]	Bechet et al., 1998	Medium	France	Bird <i>Lanius senator</i>	Road	Roadside trees and bushes	Trees and bushes far from road	(ns) We found no roadside effect, [<u>nest</u>] <u>survival rate</u> being similar along roadsides and far from roadsides (text p. 3).	a
[6]	Delgado et al., 2008	Medium	Spain	Birds	Road	Laurel forest along asphalt roads	Laurel forest along unpaved roads	(-) <u>Species richness</u> , <u>diversity</u> , and <u>density</u> were significantly higher along unpaved than along asphalt road margins, whereas species dominance was higher along asphalt roads than along unpaved roads (text p. 4).	a
[7]	Geerts and Pauw, 2011	Medium	South Africa	Birds	Road	<i>Erica perspicua</i> flowers 0-10 m from road edge	<i>Erica perspicua</i> flowers 40-50 m from road edge	(-) Distance from the road was a significant covariate in our analysis and had a negative impact on bird pollination with a significantly lower number of flowers with ruptured anther rings at the roadside edge than the plots further removed from the road (text p. 4) (<u>activity</u>).	a
[8]	Holm and Laursen, 2011	Medium	Denmark	Bird <i>Parus major</i>	Road	Hedgerows between crop fields and roads	Hedgerows between crop fields and dirt roads	(-) there was a significant difference in the number of fledglings between disturbance grades, the result of a significantly lower mean <u>number of fledglings</u> in the nestboxes along paved roads with fast traffic, compared with those in hedgerows with no disturbance and along dirt roads with slow traffic (text p. 2).	a
[9]	Meunier et al., 1999b	Medium	France	Birds	Road (highway)	Highway verges	Landscape matrix 200 or 300 m from road	(- or ns depending on landscape) By site, there was a significant effect of road in the woodland and the matoral site on <u>species richness</u> and <u>abundance</u> . Roadsides of these two sites were poorer than outsiders in terms of species richness and abundance (table 3). In contrast, species richness in farmland roadsides was slightly greater than that in outside plots [but not significant], while abundance was similar (text p. 4).	a
[10]	Holbrook et al., 2015	Medium	United States of America	Bird <i>Sphyrapicus nuchalis</i>	Road	Forest, distance to road (continuous variable)	Forest, distance to road (continuous variable)	(ns) the effect of roads on red-naped sapsuckers <u>occupancy</u> was negative indicating a positive relationship between occupancy and roads (Fig. 3), but the effect was only weakly supported [no significant effect] (Tables 4 and 5) (text p. 6).	a
[11]	Weakland and	Medium	United	Bird	Road	Forest, open canopy	Forest, natural	(+) Territory placement in relation to closest edge type differed from the expected	a

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
	Wood, 2005		States of America	<i>Dendroica cerulea</i>		road edge	canopy gap	distribution (text p. 9). The <u>number of territories</u> observed was significantly higher at open road edge than at natural canopy gap (confidence intervals do not overlap in table 3).	
[12]	Yamac and Kirazli, 2012	Medium	Turkey	Bird <i>Pica pica</i>	Road (highway)	0 – 10 m from highway	0 – 10 m from dirt road	(+) Although no statistical differences in egg laying date, clutch size or brood size were found, <u>the number of fledglings per nest</u> was significantly higher along the highway site than along the dirt road (text p. 4).	a
[13]	Hindmarch et al., 2017	Medium	Canada	Bird <i>Tyto furcata</i>	Road (highway & non highway)	Roadside grass verge	Field margin (grass)	(+) The habitat “roadside grass verges” was significantly preferred over all other habitat types (Table 3) (text p. 5) (<u>locations</u>).	a
[14]	Scarpignato and George, 2013	Medium	United States of America	Bird <i>Corvus corax</i>	Road	Forest, distance to road (continuous variable)	Forest, distance to road (continuous variable)	(+) Raven space use was consistently positively related (negative coefficient) with [...] distance to road, indicating that ravens used areas closer to [...] roads more frequently (text p. 7) (<u>locations</u>).	a
[15]	Adams and Geis, 1983	Low	United States of America	Small mammals	Road (highway & non highway)	Roadside	240 – 320 m from road	(+ or ns, highways) Total small mammal <u>density</u> in interstate right-of-ways was greater than that in adjacent habitat for the [...] California and Oregon. The same pattern was found in the Southern Piedmont, but the results were not as clearcut [not significant] (text p. 7). (ns or -, non-highway roads) Small mammal <u>density</u> in county right-of-ways generally was similar to (California) or lower than (Southeast) small mammal density in adjacent habitat (text p. 7).	a
[16]	Ascensao et al., 2012	Low	Portugal	Small mammals	Road (highway)	Highway verges surrounded by montado or open areas	Pure montado or open areas (non-highway sites)	(+) Overall there was a higher <u>abundance</u> of small mammals in highway sites compared to non-highway sites (text p. 8). (+) <u>Abundance</u> of <i>Crocidura russula</i> was greater in highway than in non-highway sites both in montado and open areas (Figure 3). (+ or ns) <u>Abundance</u> of <i>Apodemus sylvaticus</i> e and <i>Mus spretus</i> was greater in highway sites than in non-highway sites in montado but they were no significant differences in open areas (Figure 3).	a
[17]	Rotholz and Mandelik, 2013	Low	Israel	Small mammals	Road	Shrubland, road edge	Shrubland, from 550 to 1700 m from road	(+) Mean <u>abundance</u> of [...] mammals was significantly higher in the road edge compared to the control plots (text p. 8). (ns) In the species-poor taxa, we found no significant differences in mean <u>species richness</u> between the road edge and the control plots (mammals) (text p. 7-8). (ns) The road edge had no significant effect on the [...] mammal <u>species composition</u> (text p. 9).	a
[18]	Stewart et al., 2017	Low	United Kingdom	Small mammal <i>Arvicola amphibius</i>	Road	Grassland, roadside	Grassland, public park or garden	(ns) Mean predicted <u>occupancy</u> was not significantly different between park and roadside (confidence intervals overlap in Figure 3).	a
[4]	Weermans and van Aarde, 2003	Low	South Africa	Rodents (and birds)	Road	Forest road edge (undisturbed forest)	Forest interior (undisturbed forest)	(ns) For rodents no distinction could be made between edge and core <u>assemblages</u> (text p. 3).	a
[19]	Bissonette and Rosa, 2009	Medium	United States of America	Small mammals	Road (highway)	Shrubland, road verge	Shrubland, 600 m from road	(+) Comparisons between close, mid, and distant webs found lower <u>abundances</u> of small mammals as a group at distant transects. An 87.3% difference between abundances at close and distant webs was highly significant (text p. 6). (+) <u>Shannon-Wiener diversity index</u> was 57-87% lower farther from the road (text p. 6).	a
[20]	Delgado et al., 2001	Medium	Spain	Small mammal <i>Rattus rattus</i>	Road	Forest road edge	Forest 100 m from road	(+) We detected clear differences in rat <u>foraging intensity</u> between road edge and forest interior. For the laurel forest, rates of bait encounter [...] were significantly higher along road edges than at the interior (Fig. 2. Table 2). In the pine forest, encounter rates were higher along road edges [...] (text p. 4)	a
[21]	Meunier et al., 1999a	Medium	France	Small mammals	Road (highway)	Highway verges	Landscape matrix 200 m from road	(+ or ns depending on landscape) <u>Abundance</u> of <i>Crocidura russula</i> was significantly higher in unmown road verges than in landscape matrix in plantation or farmland	a

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
								landscape, and was not significantly different in garrigue landscape. Abundance of <i>C. russula</i> was significantly higher in mown road verges than in landscape matrix in farmland landscape, and was not significantly different in garrigue and plantation landscape (Figure 1). (+) or ns depending on landscape Abundance of <i>Apodemus sylvaticus</i> was significantly higher in (unmown or mown) road verges than in landscape matrix in garrigue landscape, and was not significantly different in plantation landscape (Figure 1).	
[22]	Jumeau et al., 2017	Medium	France	Small mammals	Road	Grassy road verges	Wheat field	(+) <u>Relative abundances</u> of <i>Sorex araneus</i> were significantly higher in road verges than in wheat fields (Figure 2). (ns) <u>Relative abundances</u> of <i>Microtus arvalis</i> , <i>Myodes glareolus</i> , <i>Apodemus sylvaticus</i> were not significantly different between road verges and wheat fields (Figure 2).	a
[23]	Santos et al., 2007	Medium	Portugal	Small mammal <i>Microtus cabreræ</i>	Road	Road verge sites	Meadow sites at least 80 m away from any road	(ns) Vole <u>abundance class</u> were not significantly different between meadow sites and road verges sites (Table 1).	a
[24]	Owen et al., 2015	Medium	United States of America	Mammals <i>Procyon lotor</i>	Road	Road habitat	Open/non-forest areas	(+) Raccoon selected significantly more road habitat than open habitat (table 1) (<u>locations</u>).	a
[25]	Ben-Ami and Ramp, 2013	Medium	Australia	Mammals <i>Wallabia bicolor</i>	Road (highway)	Distance from road (continuous variable)	Distance from road (continuous variable)	(ns) No significant relationship between <u>pellet accumulation</u> and distance from road (table 2).	a
[26]	Hein et al., 2009	Medium	United States of America	Bats	Road	Visual corridors located along public roads	Forested corridor	(+) Road were positively related to <u>species occurrence</u> for <i>Eptesicus fuscus</i> , <i>Lasiurus seminolus</i> , and <i>Perimyotis subflavus</i> (table 4). (ns) No significant effect of road on <u>species occurrence</u> for <i>L. borealis</i> , <i>Myotis lucifugus</i> , <i>Nycticeius humeralis</i> (table 4).	a
[27]	Myczko et al., 2017	Medium	Poland	Bats	Road	Asphalt road sites	Paired reference sites 100 m from the road on unsurfaced forest roads	(+) <i>Nyctalus noctula</i> , <i>Eptesicus spp.</i> (including <i>Vespertilio murinus</i>), <i>Pipistrellus nathusii</i> , <i>P. pipistrellus</i> and <i>P. pygmaeus</i> each had significantly higher <u>number of bat passes</u> at asphalt roads than at reference sites, (-) while only <i>Barbastella barbastellus</i> had a significantly higher <u>number of bat passes</u> at reference sites (text p. 4). (+) The <u>number of taxa</u> was also significantly higher at asphalt roads (text p. 4).	a
[28]	Mallard, 2014	Medium	France	Bats	Road	Forest road edge	Forest track edge	(ns) <u>Abundance</u> in forest track edge ("Forêt") and in forest road edge ("Lisière") were not significantly different (Figure 219b p. 317). (ns) <u>Species richness</u> in forest track edge ("Forêt") and in forest road edge ("Lisière") were not significantly different (Figure 221b p. 318). (ns) <u>Shannon diversity</u> in forest track edge ("Forêt") and in forest road edge ("Lisière") were not significantly different (Figure 223b p. 319).	a
[29]	Waters et al., 1999	Medium	United Kingdom	Bat <i>Nyctalus leisleri</i>	Road (highway and non-highway)	Lit roadsides lined by tall mature scrub either in hedges or at woodland margins	Woodland	(ns) There were significant differences in use between all habitat categories with the exception of the roads vs woodland category, which were not significantly different in the degree of use (text p. 5) (<u>locations</u>).	a
[30]	O'Donnell and Christie, 2006	Medium	New Zealand	Bats	Road	Forest-road edge	Forest-grassland edge	(ns) For lesser short-tailed bat <i>Mystacina tuberculata</i> , <u>mean bat passes per night</u> were not significantly different between forest-road edge ("Road") and forest-grassland edge ("Edge") (Figure 3A). (-) For long-tailed bat <i>Chalinolobus tuberculatus</i> , <u>mean bat passes per night</u> were significantly lower at forest-road edge ("Road") than at forest-grassland edge ("Edge") (Figure 3B).	a
[31]	Claireau, 2018	Medium	France	Bats	Road (highway)	Distance from road (continuous variable)	Distance from road (continuous variable)	(-) At the ten species level, our results showed a significant negative effect of major roads on <u>bat activity</u> for four species among the ten studied, i.e. for these four species, bat activity increased with the distance to the major road. These species were	a

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
								<i>Eptesicus serotinus</i> , <i>Myotis spp.</i> , <i>Pipistrellus pipistrellus</i> , and <i>Rhinolophus hipposideros</i> . [...] we found a significant negative effect of major roads only for the <u>activity</u> of clutter species (text p. 168-169). (ns) [the effect was thus non-significant for <i>Nyctalus leisleri</i> , <i>N. noctula</i> , <i>P. kuhlii</i> , <i>Barbastella barbastellus</i> , <i>R. ferrumequinum</i> , and <i>Plecotus spp.</i> , and for the activity of aerial species].	
[32]	Pescador and Peris, 2007	Low	Spain	Avian nest predators	Road	Wooded pasturelands 0 – 5 m from road	Wooded pasturelands more than 100 m from road	(- or ns) The high-traffic road showed differences in <u>predation</u> in relation to the distance from the road in 2004, but not in 2005. The artificial nests closer to the road, up to 25 m, had an increased probability of remaining intact (text p. 4). (- or +) At the medium-traffic road, nest mortality was related to distance in either 2004 or 2005. <u>Nest predation</u> increased near the road edge during the first year, but in 2005 it decreased in first 5m from the road (text p. 4). (- or ns) <u>Nest predation</u> at the low-traffic road changed as a function of the distance from the road in 2004, but not in 2005. There was higher predation at the nests farthest away from the road (text p. 4)	a
[33]	Niu et al., 2018	Medium	China	seed predators (mammals and birds)	Road	Forest 5 m from road	Forest 100-150 m from road	(+ or ns) <u>Seed removal rate</u> along roadsides was significantly faster than that in the forest centre in autumn and winter, but not in spring (text p. 3).	a
[34]	Akmali et al., 2004	Medium	Iran	Bats	Waterway	Water meadow	Agricultural land	(+) The average frequency of <i>Pipistrellus spp.</i> in aquatic habitats (riparian vegetation in the Gamasiab and Dinevar rivers, the marshland and the water meadow is significantly higher (p<0.05) than in terrestrial habitats (agricultural land and the coniferous plantation) (text p. 4) (<u>bat activity</u>).	b
[35]	Anderson et al., 2006	Medium	Australia	Bat <i>Myotis macrocarpus</i>	Waterway	Side of large waterways (4 th , 5 th or 6 th order)	Side of small waterways (2 nd , 3 rd or 4 th order)	(+) The analysis found that <i>Myotis macrocarpus</i> was significantly more likely to be recorded on larger waterways (category 3 and 4) compared to smaller waterways (category 1 and 2) (text p. 7) (<u>occurrence</u>).	b
[36]	Barros et al., 2014	Medium	Brazil	Bats	Waterway	Margin of an artificial managed channel	Grassland	(+) <u>Bat activity</u> differed significantly among habitat types. We observed the highest activity in the eucalyptus stand and in the channel [...]. The grassland was the least used habitat.	b
[37]	Lloyd et al., 2006	Medium	Australia	Bats	Waterway	Riparian forest, 4 th order stream	Riparian forest, 1 st order stream	(+) <u>Bat activity</u> was significantly higher in riparian sites along 4 th order stream than in riparian stream along 1 st order stream (Figure 2). (ns) <u>Species richness</u> was not affected by [...] stream order size (text p. 8).	b
[38]	Rachwald et al., 2016	Medium	United Kingdom	Bats	Waterway	River-forest ecotones	Meadow-forest ecotones	(+) <u>Bat activity</u> of <i>Pipistrellus pygmaeus</i> was significantly higher at the river-forest edge ("water") than at the meadow-forest edge ("edge") (Figure 1 and text p. 4). (ns) <u>Bat activity</u> of <i>P. pipistrellus</i> was not significantly different between river-forest edge ("water") and meadow-forest edge ("edge") (Figure 1 and text p. 4).	b
[39]	Clear, 2005	Medium	United Kingdom	Bats	Waterway	Canal sites	Paired non-canal sites	(ns) There was no significant difference in the indices of <u>bat activity</u> between the canal and the non-canal sites for the two pipistrelle species (<i>Pipistrellus pipistrellus</i> , <i>P. pygmaeus</i>) (text p. 4).	b
[40]	Ellis et al., 2002	Medium	United States of America	Bats	Waterway	Riparian forest along river	Riparian forest along creeks	(ns) In riparian areas, <u>species richness</u> did not differ among the habitat types (text p. 5).	b
[41]	Law et al., 2011	Medium	Australia	Bats	Waterway	0 m from stream-beds	200 m from stream-beds	(ns) <u>Bat composition</u> over stream-beds did not differ from detector sites in adjacent woodland (text p. 4). (+) <u>Bat activity</u> was significantly higher over stream-beds than 200 m from stream-beds (Figure 3).	b
[42]	Lock and Naiman, 1998	Low	United States of America	Birds	Waterway	Forest, 5 th or 6 th order stream	Forest, 2 nd or 3 rd order stream	(ns) <u>Abundance</u> was not significantly different between large and small rivers (table 3). (+ or ns) <u>Species richness</u> was significantly higher on large rivers than on small rivers in 1991 but not in 1990 (table 3).	b

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[43]	Petit and Petit, 1996	Medium	United States of America	Bird <i>Protonotaria citrea</i>	Waterway	Shoreline	70 and 105 m from water	(+) <u>Mean breeding densities</u> were significantly higher on grid row 1 [shoreline] than on all other rows in each year (text p. 9).	b
[44]	Gatesire et al., 2014	Medium	Rwanda	Birds	Waterway	Riversides (open field)	Riversides (open field)	(+) There were significantly less birds in [streamsides] compared to the <u>number of birds</u> encountered in plot located in [riversides] (text p. 5, table 3). (+) The LMM analysis revealed that the average <u>number of bird species</u> found in [streamsides] was significantly lower than the number of bird species in [riversides] (text p. 5, table 2).	b
[45]	Maltchik et al., 2008	Medium	Brazil	Amphibians	Waterway	Forest, 20 m from the main channel	Forest, 120 m from the main channel	The <u>richness</u> of amphibians changed with the distance from the river in some collections (text p. 3). (+) collections dates C1, C2, C9 (table 3). (ns) collections dates C3, C4, C6, C7, C8, C10, C11, C12 (table 3). (-) collection dates C5 (table 3).	b
[46]	Rabearivony et al., 2015	Low	Madagascar	Reptiles	Waterway	Forest riparian edge 0-25 m from the river	Forest interior 25-50 m from the river	(+) Of these eight recorded species, four showed particular association to the riparian edge: <i>Palleon nasus</i> , <i>Calumma gastrotaenia</i> , <i>C. glawi</i> , and <i>C. nasutum</i> (text p. 5) (<u>occurrence</u>). (ns) The other four species showed no significant association to the riparian edge: <i>Brookesia superciliaris</i> , <i>B. thieli</i> , <i>Calumma crypticum</i> , and <i>C. oshaughnessyi</i> showed no significant association to the edge (table 2) (<u>occurrence</u>).	b
[47]	Tryjanowski et al., 2014	Low	Poland	Birds	Powerline	Open field under the powerline	Open field 200 m perpendicular to the powerline	(+) <u>Mean abundance</u> below powerline was significantly higher than in adjacent field (Figure 1). (+) <u>Mean species richness</u> below powerline was significantly higher than in adjacent field (Figure 1).	c
[48]	Evans and Gates, 1997	Low	United States of America	Birds	Powerline	Forest-powerline corridor edge	Forest-brush edge	(ns) The forest-powerline edge had the highest <u>mean bird species abundance</u> , followed by -brush, and -open road edges [no significant differences] (text p. 3, table 1). Forest-brush edge was not significantly different from the other edge habitats [in terms of <u>mean host abundance</u>] (text p. 5). (ns) There was no significant difference among habitats in bird or host <u>species richness</u> (text p. 3).	c
[3]	Rich et al., 1994	Low	United States of America	Birds	Powerline (and road)	Forest edges along powerline rights-of-way	Forest edges along unpaved roads	(-) Forest-interior Neotropical migrants as a group, and four of the nine forest-interior species that could be tested parametrically, had significantly greater relative <u>abundances</u> on edge transects along unpaved corridors than along paved road or powerline corridors (text p. 6). (ns) None of the other forest-nester species or nest predators differed significantly in relative <u>abundance</u> on forest-edge transects among corridor types (text p. 7). (ns) Brown-headed Cowbirds [<i>Molothrus ater</i>] were significantly more <u>abundant</u> on forest-edge transects along paved secondary roads than along unpaved roads or powerline corridors (text p. 7).	c
[49]	Dell'Omo et al., 2009	Medium	Italy	Birds <i>Falco tinnunculus</i>	Powerline	Open agricultural land, nest-boxes attached to high voltage powerline tower	Open agricultural land, nest-boxes attached to abandoned transmission towers, non-electric pylons or abandoned buildings	(ns) The <u>number of fledglings per brood</u> and the <u>fledging success</u> did not differ between exposed and control nests (text p.3-4).	c

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[50]	Doherty and Grubb, 1998	Medium	United States of America	Birds	Powerline	Powerline corridor	Paired reference sites with similar vegetation	(ns) There was no effect of transmission lines on any measure of house wren [<i>Troglodytes aedon</i>] reproduction (text p. 3). (-) However, in tree swallows [<i>Iridoprocne bicolor</i>], significant reductions in <u>breeding success</u> under the powerline occurred at all three study sites (text p. 3).	c
[51]	Clarke et al., 2006	Low	Australia	Small mammals	Powerline	Powerline corridor	Adjacent forested area	(+) <i>Mus domesticus</i> and <i>Rattus lutreolus</i> responded positively to the presence of the corridor vegetation, showing higher mean <u>abundances</u> in this habitat type (text p. 3-4). (-) The <u>abundance</u> of <i>Antechinus agilis</i> was significantly lower in the corridor habitat than in the forest (text p. 4). (ns) There was no difference in the mean <u>abundance</u> of <i>Rattus fuscipes</i> between forest and corridor habitat (text p. 4). (ns) There was no significant difference in <u>species richness</u> between the corridor and forest (text p. 3).	c
[52]	Smith et al., 2008	Medium	United States of America	Mammals (predators)	Powerline	Powerline corridor (early successional vegetation)	Adjacent forest	(+) The <u>number of visits</u> made by large-bodied carnivores [<i>Canis latrans</i> , <i>Lynx rufus</i> , <i>C. familiaris</i>] differed significantly among the 3 locations, with the transmission line right-of-way accounting for approximately 79% of the visits versus approximately 21% in the adjacent forested habitats. (ns) The <u>number of visits</u> made by small-bodied predators [<i>Didelphis virginiana</i> , <i>Urocyon cinereoargenteus</i> , <i>Vulpes vulpes</i>] did not differ significantly among the 3 locations, with approximately 19% of visitations recorded in the transmission line right-of-way, [...] and 44% at 300 m from the forest edge.	c
[53]	Castillo et al., 2003	Medium	Argentina	Small mammals	Railway	Grassland, railway banks	Grassland, vacant lots	(ns) The population <u>abundance</u> indices of <i>Mus domesticus</i> were not significantly different among habitats (text p. 3).	d
[54]	León et al., 2013	Medium	Argentina	Small mammal <i>Mus musculus</i>	Railway	Herbaceous vegetation and trees, railway embankments	Weed community, borders of cropfields and pastures	(ns) <i>Mus musculus</i> showed a significant higher <u>abundance</u> in poultry farms than all other habitats [thus non-significant differences between railway embankments and borders of cropfields and pastures] (text p. 5)	d
[55]	Cerboncini et al., 2016	Medium	Brazil	Small mammals	Railway	Forest-railway right of way edge	Forest, 150 m from railway right of way	(ns) Total capture and <u>abundance</u> were independent of distance from the edge (text p. 3). (ns) <u>Species composition</u> was similar at all distances from the edge (text p. 4). (+) The <u>number of species</u> captured declined towards the forest interior (text p. 3).	d
[56]	Vandeveldt et al., 2014	Medium	France	Bats	Railway	Railway tracks-woodland edge	Field-woodland edge	(ns) At site scale, <u>bat activity</u> on railway edges was quite similar to that in neighbouring site types (field edge, wood, field) [<i>Pipistrellus pipistrellus</i> , <i>Nyctalus spp.</i> , <i>Myotis spp.</i>] (text p. 4). (-) During the reproductive period, <u>activity</u> was significantly greater along field edges than in railways verges for <i>Myotis ssp.</i> (text p. 4).	d

Table S2: Key results of the nine studies included in the narrative synthesis of the question: Is vertebrate biodiversity in LTI verges dependent on the surrounding landscape? (question Q5)

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[57]	Lintott et al. 2015	Low	United Kingdom	Bats	Waterway	Riverbank	% grey space, % woodland, in 1 or 3 km buffer	(-) <i>Myotis spp. activity</i> was negatively related to the proportion of grey space in the surrounding 3 km (text p. 4, table 2, Fig. 2d). (ns) They were no significant landscape predictors of <i>Nyctalus spp. activity</i> (text p. 5, table 2), and of <i>Pipistrellus pipistrellus activity</i> (text p.5, table 3). [<i>P. pygmaeus activity</i> was negatively related to the proportion of freshwater in the surrounding 3 km (text p. 5, table 3)]	e
[58]	Lopez-Baucells et al., 2017	Low	Spain	Bats	Waterway	Riverbank	% urban cover, % forest cover, in 1 or 5 km radius	(ns) No environmental variable had a statistically significant effect on <u>species presence</u> (<i>Myotis daubentonii</i> and <i>M. capaccinii</i>) (text p. 5 and table 3).	e
[59]	Langton et al., 2010	Medium	United Kingdom	Bat <i>Myotis daubentonii</i>	Waterway	Riverbank	% built land, % woodland, % arable land, in 1 km square	(-) Significant negative effect of increasing proportion of built land on <i>M. daubentonii activity</i> (table 1, figure 4). (+) Significant positive effect of increasing proportion of woodland on <i>M. daubentonii activity</i> (table 1, figure 4). (ns) Non-significant relationship between % arable land and <i>M. daubentonii activity</i> (table 1).	e
[60]	Scher and Thiéry, 2005	Medium	France	Amphibians	Road (highway)	Highway storm water retention pond	% built surface in 4 km ² square centered on each pond	(-) Amphibians <u>species richness</u> was negatively correlated with the degree of anthropisation (text p. 9).	e
[61]	Askins et al., 2012)	Medium	United States of America	Birds	Powerline	Powerline right of way	% developed areas, % agricultural areas, in 1 or 5km buffer	(-) An increase in the area of developed or agricultural land in the surrounding landscape had a negative relationship with the <u>number of species</u> of shrubland birds (Figure 2) and the <u>abundance</u> of all the shrubland species (ns) except prairie warbler (Table 4) and eastern towhee (text p. 4).	e
[16]	Ascensao et al., 2012	Low	Portugal	Small mammals	Road (highway)	Highway margin	Types of landscape: montado (agrosilvopastoral system), open habitats (crops, fallows)	(+/-) <u>Abundance</u> of <i>Apodemus sylvaticus</i> significantly higher in highway verges surrounded by montado than in those surrounded by open habitats (figure 2). (ns) No significant differences in <u>abundance</u> of <i>Mus spretus</i> or <i>Crocidura russula</i> between highway verges surrounded by montado or open habitats (figure 2).	f
[9]	Meunier et al., 1999	Medium	France	Birds	Road (highway)	Road verges	Types of landscape: garrigue (matoral), plantation (woodland), farmland	(+/-) <u>Species richness</u> and <u>abundance</u> were greater in the roadsides of the farmland site than in the two others, and greater in woodland roadsides than in matoral roadsides (text p. 4).	f
[62]	Janiszewski et al., 2015)	Medium	Poland	Bird <i>Ciconia ciconia</i>	Powerline	Electricity poles	Types of landscape: low quality (LQA), medium quality (MQA), high quality (HQA)	(+/-) We found significant differences in the mean <u>number of fledglings per pair</u> between study plots of different quality, with pairs nesting in LQA raising significantly fewer fledglings in comparison to the plots of higher quality (text p. 5).	f
[63]	Todd and Waters, 2017	Medium	United Kingdom	Bats	Waterway	Riverbank	Levels of altitude: 150 m, 165 m, 210 m, 270 m	(-) They were differences in numbers of bats with altitude [...] with a trend of higher <u>number of bat passes</u> at the lowest altitude (150 m for <i>Myotis daubentonii</i> and < 270 m for <i>Pipistrellus pipistrellus</i>) (text p. 7 and p. 8).	f

Table S3: Key results of the 19 studies included in the narrative synthesis of the question: Do LTI verge management practices increase, decrease, or have no effect on vertebrate biodiversity in LTI verges? (question Q1)

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[64]	Adams, 1984	Medium	United States of America	Small mammals	Road (highway)	Highway median strip	<i>Mowing</i> - Mowed median strip right-of-way - Unmowed median strip right-of-way	(ns) Although these data are suggestive of greater <u>density</u> of small mammals in unmowed herbaceous median strips, no statistical significance was attributed to the differences (text p. 4).	g
[65]	Bellamy et al., 2000	Medium	United Kingdom	Small mammals	Road	Road verges	<i>Decreasing vegetation height</i> Varying heights of tall grass (from 0 to 1.1 m) and of hedge (from 0 to 3.5 m)	(ns) The <u>number</u> of <i>Apodemus sylvaticus</i> , <i>Clethrionomys glareolus</i> , and <i>Microtus agrestis</i> individuals captured was not significantly correlated with tall grass height, and the number of <i>M. agrestis</i> individuals captured was not significantly correlated with hedge height (table 3). (-) The <u>number</u> of <i>A. sylvaticus</i> and <i>C. glareolus</i> individuals captured was significantly positively correlated with hedge height (table 3).	g
[51]	Clarke et al., 2006	Medium	Australia	Small mammal <i>Mus domesticus</i>	Powerline	Powerline corridor	<i>Reducing vegetation cover</i> 3 time-since-management categories. Vegetation management was spraying, slashing, blading, clearing	(+) <i>Mus domesticus</i> <u>abundance</u> responded negatively to time-since-management, indicating that habitat in an early stage of succession may be optimal for this species (text p. 6).	g
[66]	Clarke and White, 2008	Medium	Australia	Small mammals	Powerline	Powerline corridor	<i>Slashing</i> - Slashed corridor sections - Corridor section that has not been slashed since several years	(-) Trap success varied greatly between the managed and unmanaged corridors with much higher success occurring in the unmanaged area. Native small mammal <u>abundance</u> was lower in the managed corridors and (+) the <u>abundance</u> of the introduced <i>Mus domesticus</i> was highest in this habitat (text p. 3).	g
[21]	Meunier et al., 1999a	Medium	France	Small mammals	Road (highway)	Road verges	<i>Mowing</i> - Mowed strip - Unmowed strip	(- or ns depending on landscape) Abundance of <i>Crocidura russula</i> was significantly lower in mown habitat than in unmown habitat in garrigue and plantation landscapes, but differences were not significant in the farmland landscape (Figure 1). <u>Abundance</u> of <i>Apodemus sylvaticus</i> was significantly lower in mown habitat than in unmown habitat in plantation landscape, but differences were not significant in the garrigue landscape (Figure 1).	g
[67]	Vaughan et al., 2007	Medium	United Kingdom	Birds	Waterway	Riverbanks	<i>Channelization</i> - c. 10% of the banks reinforced - No reinforcement	(ns) No significant effect of reinforced banks on the <u>occurrence</u> of <i>Riparia riparia</i> (table 2). (+) Significant positive effect of reinforced banks on the <u>occurrence</u> of <i>Motacilla cinerea</i> (table 2).	g
[68]	Vilches et al., 2012	Medium	Spain	Bird <i>Alcedo atthis</i>	Waterway	Riverbanks	<i>Channelization</i> Varying proportions of artificial walls on banks	(ns) No significant differences in proportion of artificial walls between <i>Alcedo atthis</i> breeding and non-breeding territories (table 1) (<u>occurrence</u>).	g
[69]	Zabala et al., 2006	Medium	Spain	Other mammal <i>Mustela lutreola</i>	Waterway	Riversides	<i>Channelization</i> - Aggressively canalized riverbank (concrete canals) - Well-preserved riverbank	(-) European mink avoided canalized streams, preferring natural or slightly altered waters (Table 4) (text p. 5) (<u>occurrence</u>).	g
[70]	Chen and Lue, 2009	Medium	Taiwan	Reptile <i>Mauremys sinensis</i>	Waterway	Riverbanks	<i>Channelization</i> - After intervention - Before intervention	(-) Compared to data collected prior to the construction project, there was a significant difference in <u>capture frequency</u> among male, female, and juvenile turtles after the project (text p. 5). Less juveniles and females but (+) more males were captured after the intervention (table 1).	g

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[71]	Farago and Hangya, 2012	Medium	Hungary and Slovakia	Birds (aquatic birds)	Waterway	Riverbanks	<i>Increasing water level</i> Varying water levels (from 33 to 558 cm)	(-) there was a strong tendency for <u>species richness</u> and <u>number of individuals</u> to correlate negatively and (+) for <u>Shannon diversity</u> to correlate positively with water level (text p. 4). This pattern was significant in late summer, also in winter for abundance and species richness, (ns) but it was not significant in autumn and spring (table 3).	g
[72]	Moffatt et al., 2005	Medium	United States of America	Bird <i>Riparia riparia</i>	Waterway	Riverbanks	<i>Increasing river discharge</i> Varying maximum river discharge (from c. 500 m ³ /s to 3000 m ³ /s)	(+/-) Stepwise logistic regression indicated that river discharge before the breeding season increased both [population] colonization and extinction probabilities (text p. 6) (<u>occurrence</u>).	g
[73]	Royan et al., 2013	Medium	United Kingdom	Birds	Waterway	Riverbanks	<i>Increasing mean daily flow</i> Varying mean daily flow (from 0.2 to 117.8 m ³)	(-) Species displayed largely negative associations with Mean Daily Flow, (+) although both common reed bunting (<i>Emberiza schoeniclus</i>) and grey wagtail [<i>Motacilla cinerea</i>] had positive associations (text p.4). (ns) Nine species displayed non-significant relationships between mean daily flow and <u>occurrence</u> .	g
[74]	Blake et al., 1994	Medium	United Kingdom	Bats	Road	Roadsides	<i>Road lighting</i> - Lit road sections - Unlit road sections	(+) Mean bat <u>activity</u> along roads lit by white streetlamps was higher than the activity in the adjacent unlit controls (Figure 2). (-) Mean bat <u>activity</u> along roads lit by orange streetlamps was lower than the activity in the adjacent unlit controls (Figure 2).	g
[75]	Day et al., 2015	Medium	United Kingdom	Bat <i>Rhinolophus ferrumequinum</i>	Road	Roadside hedges	<i>Road lighting</i> Eight part-night lighting scenario (lighting until from 10 PM to 5 AM)	(-) The eight part-night lighting scenarios varied in the level of bat <u>activity</u> captured from 81% with a switch off time at 10 pm to < 1% when switching off lights at 5 am (Fig. 3). Among the different part-night lighting scenarios, activity was only significantly higher in the dark portion of the night when lights were switched off before 11 pm. (text p. 3).	g
[76]	Roche et al., 2012	Medium	Ireland	Bats	Road	Roadsides	<i>Road lighting</i> - Lit roads with orange, yellow or white lights - Unlit roads	(ns) Street lights of varying colors were not found to have a significant impact on observed <i>Pipistrellus pipistrellus</i> <u>passes per minute</u> (text p. 34). (ns) Street lights of varying colors were not found to have a significant impact on observed <i>Pipistrellus pygmaeus</i> <u>passes per minute</u> (text p. 39). (+) Street lights were found to have a significant impact on observed <i>Nyctalus leisleri</i> 's passes per minute. The <u>number of passes</u> is greatest with yellow and white lights (text p. 46-47).	g
[60]	Scher and Thiéry, 2005	Medium	France	Amphibians	Road (highway)	Highway storm water retention pond	<i>Use of synthetic bottom to construct stormwater ponds</i> - Ponds with synthetic bottom - Pond with natural bottom	(ns) Amphibian <u>richness</u> (α diversity) did not differ with bottom type (text p. 9).	g
[77]	Campbell, 2008	Medium	United Kingdom	Birds	Waterway	Riverbanks	<i>Allowing human to come on verges</i> Varying number of humans present	(+, -, ns) Significant positive, negative, or non-significant correlation between waterbirds species' <u>presence</u> and human presence depending on the species and the season considered (Table 3).	g
[78]	Fox, 1999	Medium	United Kingdom	Other mammal <i>Lutra lutra</i>	Waterway	Riverbanks	<i>Habitat improvement</i> - After habitat improvement - Before habitat improvement	(+) The change in otter <u>incidence</u> between 1991 and 1994 was shown to be a significant increase. The change in otter incidence between 1991 and 1994-95 was shown to be statistically linked to the presence or absence of havens on all rivers and whether a site showed an increase in otter incidence (change from negative to positive) was linked to the existence of havens (text p. 4).	h
[79]	de Torre et al., 2015	Medium	Spain	Birds	Road (highway)	Highway embankments	<i>Clump planting of fleshly-fruited woody species</i> - Embankments with plantings - Embankments without plantings	(ns) No differences were found in <u>species richness</u> between embankments with plantings and without them (text p. 4). (ns) Likewise, bird <u>densities</u> were no different in embankments with and without plantings (text p. 5).	h

Table S4: Key results of the seven studies included in the narrative synthesis of the question: Are vertebrate movements in LTI verges equal to, higher, or lower than their movements in similar habitats away from LTIs? (question Q4)

[ref]	Reference	Risk of bias	Country	Biological group	LTI	LTI verge	Comparison	Key results	Grp.
[80]	Andersen et al., 2017	Low	Australia	Other mammals	Road	Roadsides	4WD tracks that receive limited or no traffic	(+) <i>Sarcophilus harrisii</i> individuals were eight and a half times more likely to be along a sealed road, [...] and almost three times more likely to be along a 4WD track than away from a road (text p. 2, confidence intervals do not overlap in table 1). (ns) <i>Dasyurus maculatus</i> individuals were similarly likely to be along a sealed road or a 4WD track than away from a road (table 1, confidence intervals overlap).	i
[81]	Robley et al., 2010	Low	Australia	Other mammals	Road	Roadsides	Watercourses sides	(+) Wild dogs (<i>Canis lupus dingo</i> , <i>C. l. familiaris</i> and hybrids of the two) displayed differential use of linear habitat features. They were found more often than expected within 25 m of roads, and less often than expected within 25 m of watercourses (text p. 4).	i
[82]	Hinton et al., 2016	Medium	United States of America	Other mammals <i>Canis rufus</i>	Road	Roadsides	Habitat edges	(ns) Transient [i.e. moving] red wolves strongly selected for edges and roads (text p. 12, table 5 confidence intervals overlap).	i
[83]	Trehwella and Harris, 1990	Medium	United Kingdom	Other mammals <i>Vulpes vulpes</i>	Railway	500-m square grid cells with railway lines	500-m square grid cells without railway lines	(ns) There was no evidence that the distribution of dispersal movements was other than randomly distributed for foxes in both “railway” and “non railway” squares (text p. 3).	i
[84]	Svobodova et al., 2007	Low	Czech Republic	Other mammals	Road	Roadsides	Sides of gravel roads or unstabilized forest paths	(ns) Contrary to the prediction of the “travel line” hypothesis, no difference was found in predation rate between edge and interior nests. Similarly, nest predation was not either significantly associated with the road type (text p. 4).	j
[85]	Vignieri, 2005	Medium	United States of America	Small mammals <i>Zapus trinotatus</i>	Waterway	Distance travelled along river only	Genetic distance	(ns) There was no relationship between genetic distance and river distance (text p.10).	j
[86]	Wilson et al., 2016	Medium	United Kingdom	Small mammals <i>Apodemus sylvaticus</i>	Road, railway, waterway	Distance along roads, rivers, or railways	Genetic distance	(ns) The distance along roads, railways or rivers did not explain significantly genetic differentiation patterns in either [arable or urban] habitat (Table 5) (text p. 5).	j

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