

ASFINAG

AT-CZ Transnational
Workshop

INTERREG
Save GREEN



A|S|F|i|N|A|G

GUTE FAHRT, ÖSTERREICH!



2.249

kilometres of road

600

bridges and tunnels (>15m) are permeable

60

explicit wildlife crossings

18

additional crossings until 2027

4

of them already erected

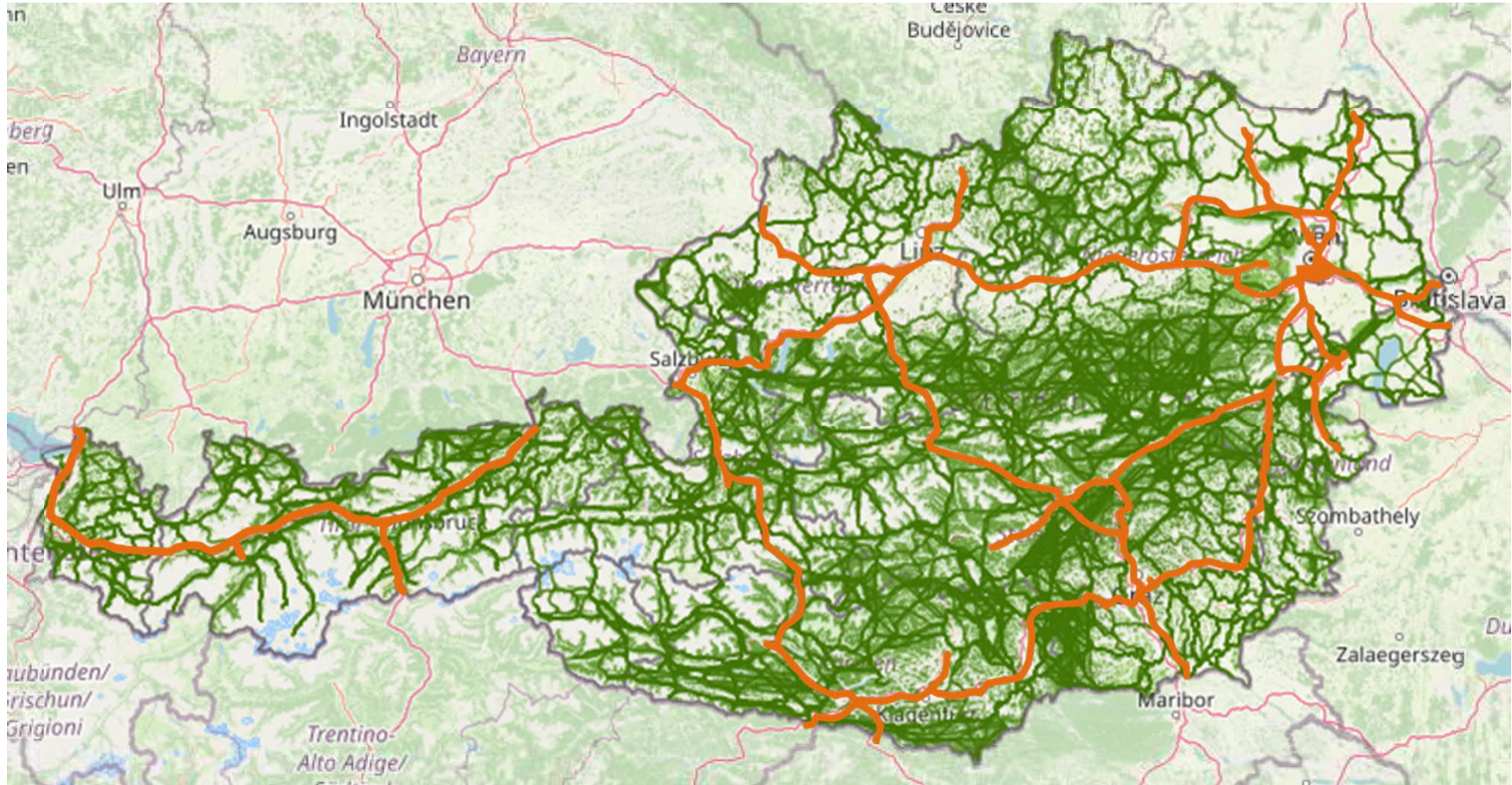
11 %

permeability - crossings over 15m

An aerial photograph of a highway interchange. The main road is a multi-lane concrete highway that curves through a landscape of agricultural fields. A bridge with a green roof spans over a road crossing. The bridge's roof is covered in vegetation, and the surrounding embankments are also landscaped with greenery. The text "THE PLANNING OF GREEN CROSSINGS" is overlaid in white, bold, sans-serif font across the center of the image.

THE PLANNING OF GREEN CROSSINGS

WHY GREEN CROSSINGS?



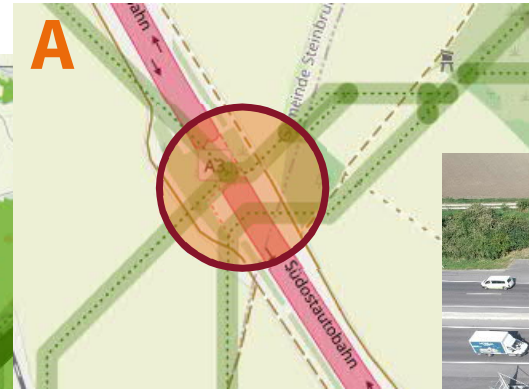
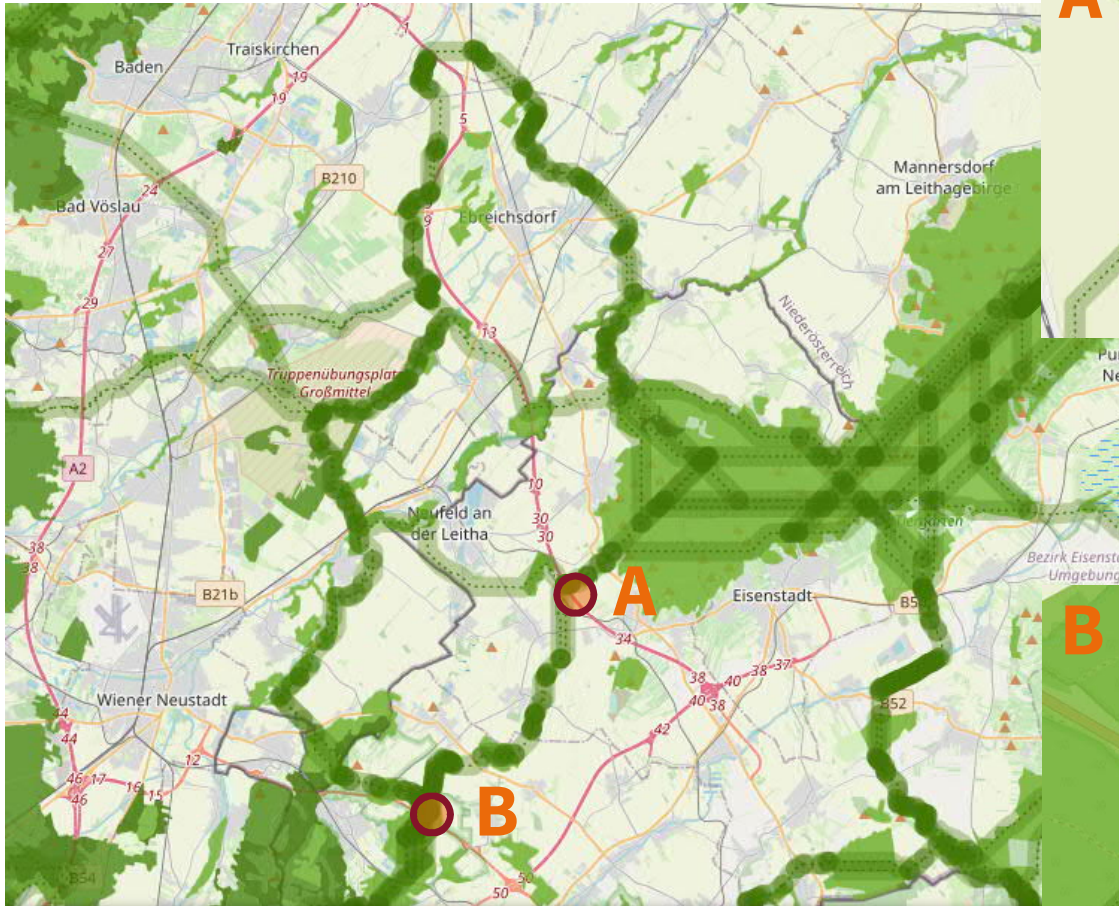
NEW CONSTRUCTION

GUIDELINE 04.03.12 WILDLIFE PROTECTION

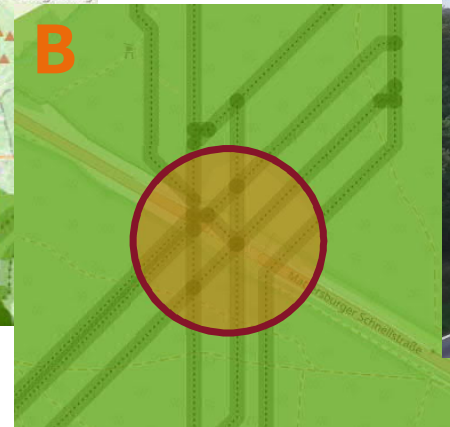
The required number of wildlife crossings and the needed size category (A, B, C) depend on the worth of the habitat networking:

- 📍 **Category A** (benchmark 80 m width): along all **interregional wildlife corridors** for big game species
- 📍 **Category B** (benchmark 50 m width): along all **regional wildlife corridors** for big game species (aside migration routes)
- 📍 **Category C** (benchmark 25 m width): along all **local wildlife corridors** for deer and small-sized mammals

WHY GREEN CROSSINGS?



A3, Müllendorf, Cat. A (length 55m)



S4, Pöttsching, Cat. A (length 90m)

ALL CROSSINGS >15 METER

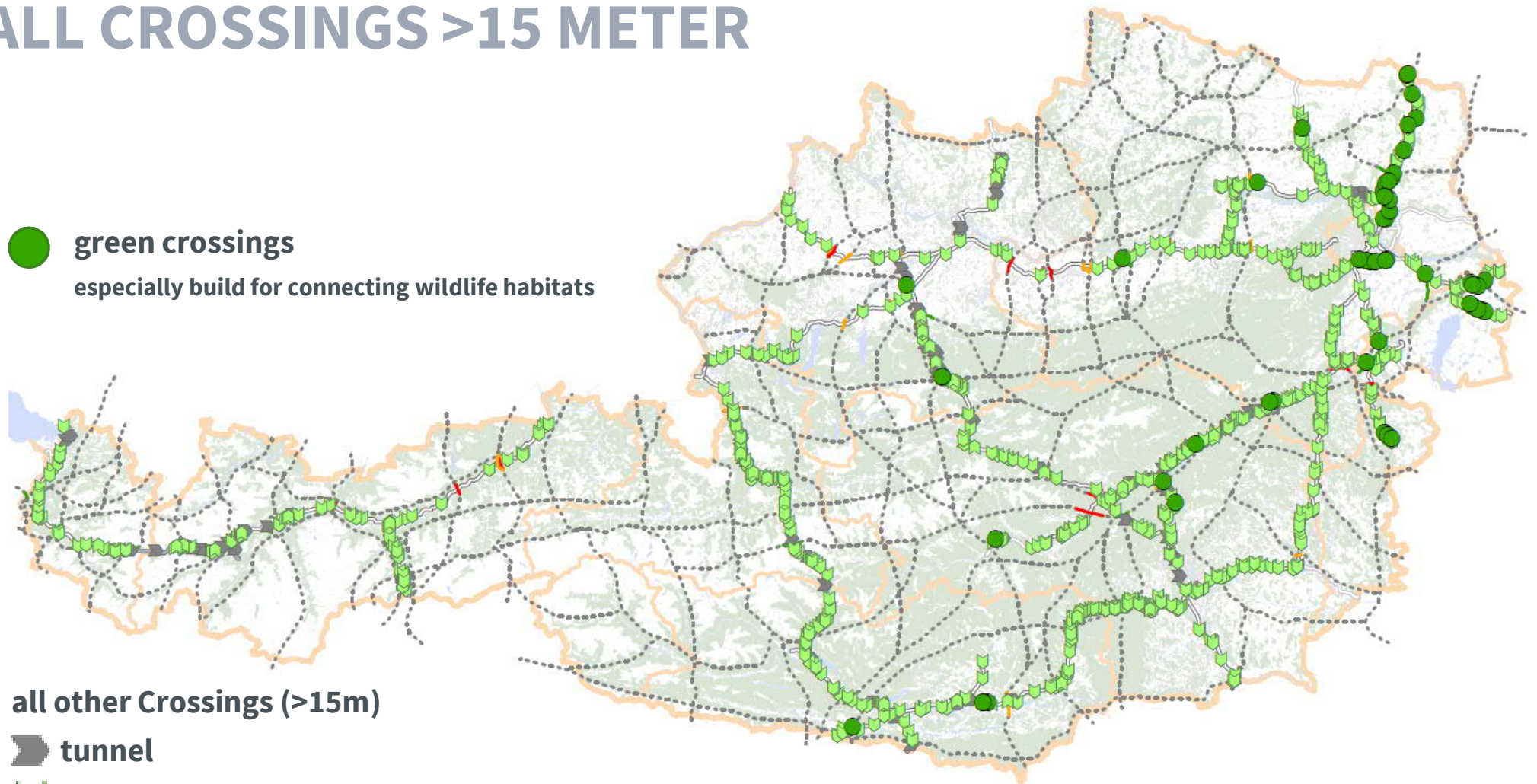
 **green crossings**
especially build for connecting wildlife habitats

all other Crossings (>15m)

 tunnel

 underpass

 overpass



HISTORY GREEN CROSSINGS IN AUSTRIA

since
1980

- Researches and analysis about accidents and measures for protections for wild animals
- Negative influence to the animal migration → habitat fragmentation

1986

- Fences especially for wild animals got complementary for the whole highway network

1987

- First requests for passages for wild animals on the Alpine-Carpathian Corridor (A4)

1990

- Starting to build green crossings on the Austrian highway

1997

- First guideline for wildlife protection in combination with infrastructure planning was published „Richtlinie Wildschutz (RVS 3.01)

2001

- Evaluation of the need of more green crossings on the highway network to reduce the habitat fragmentation

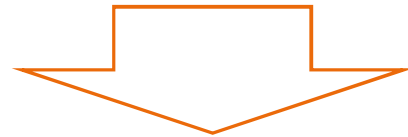
2006

- Definition of an minimum requirement of green crossings from the Austrian governmental department for the highway network BMVIT “DA: Lebensraumvernetzung Wildtiere”

REGULATIONS - GREEN CROSSINGS

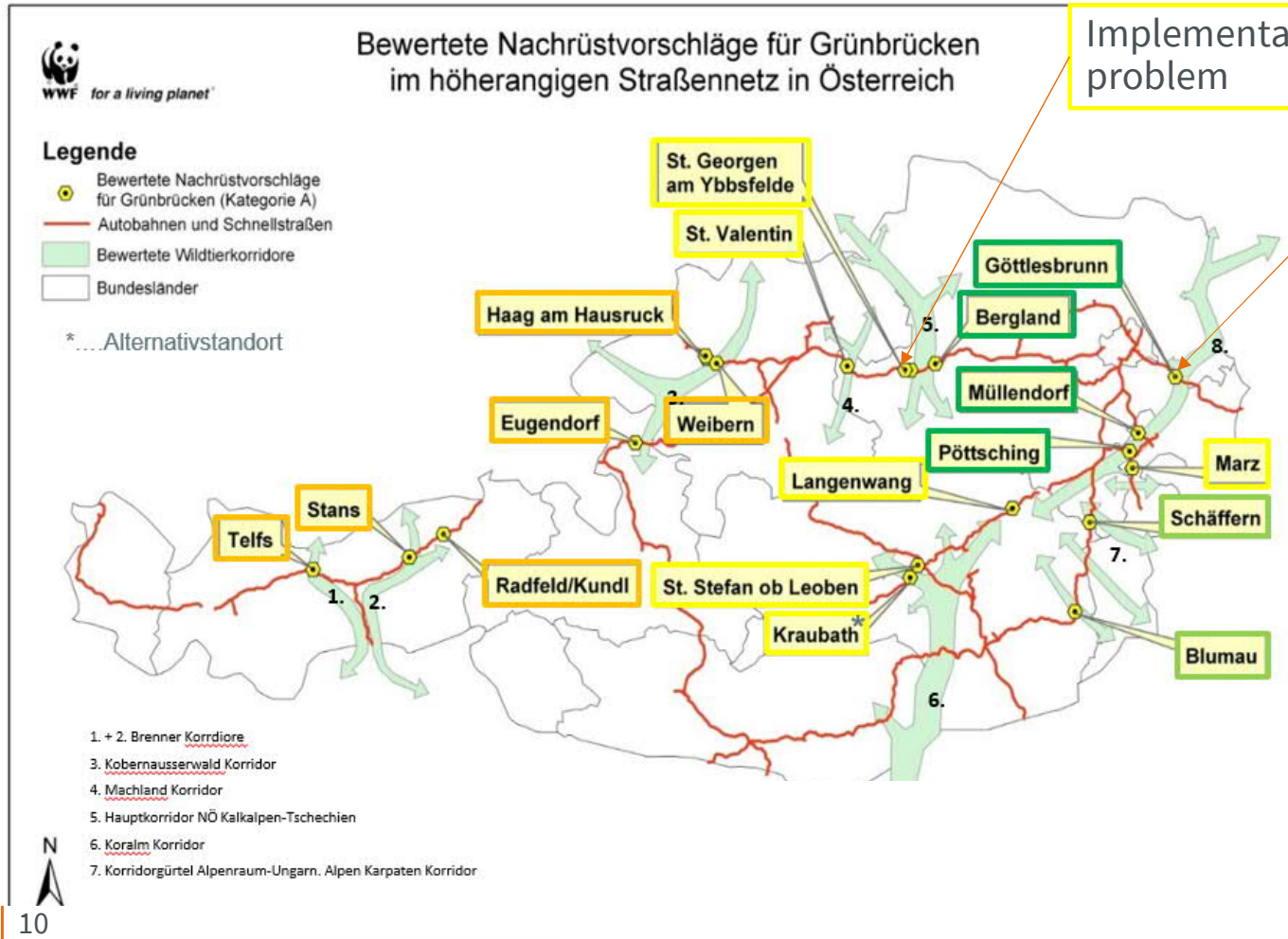
INSTRUCTIONS FROM THE AUSTRIAN GOVERNMENTAL TO THE AUSTRIAN HIGHWAY NETWORK

- 1. Retrofitting**
- 2. New construction**



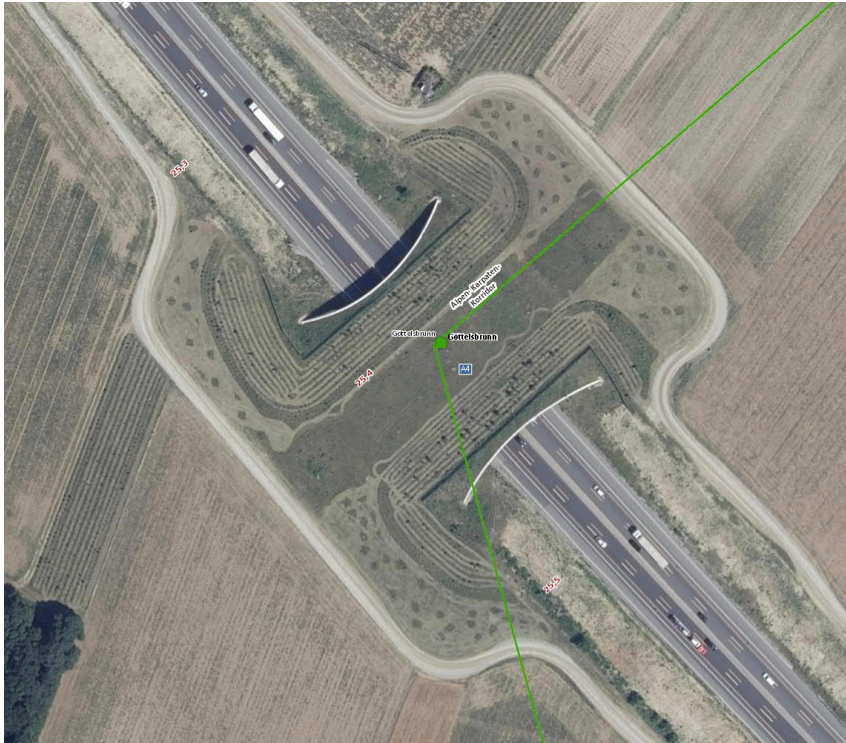
- 3. Preservation of functionality**

RETROFITTING



In accordance with the implementation concept of WWF „Strategic planning for habitat networking in Austria“ **18 wildlife crossings must be retrofitted** until 2027.

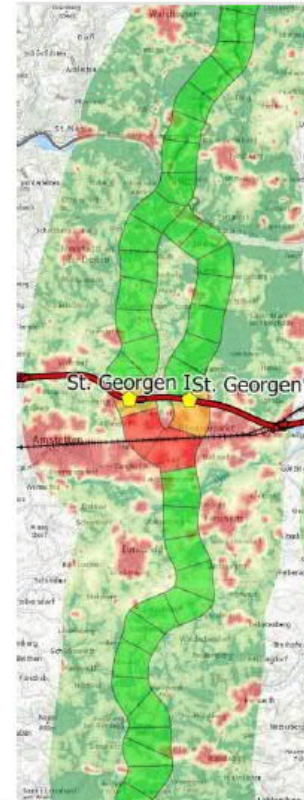
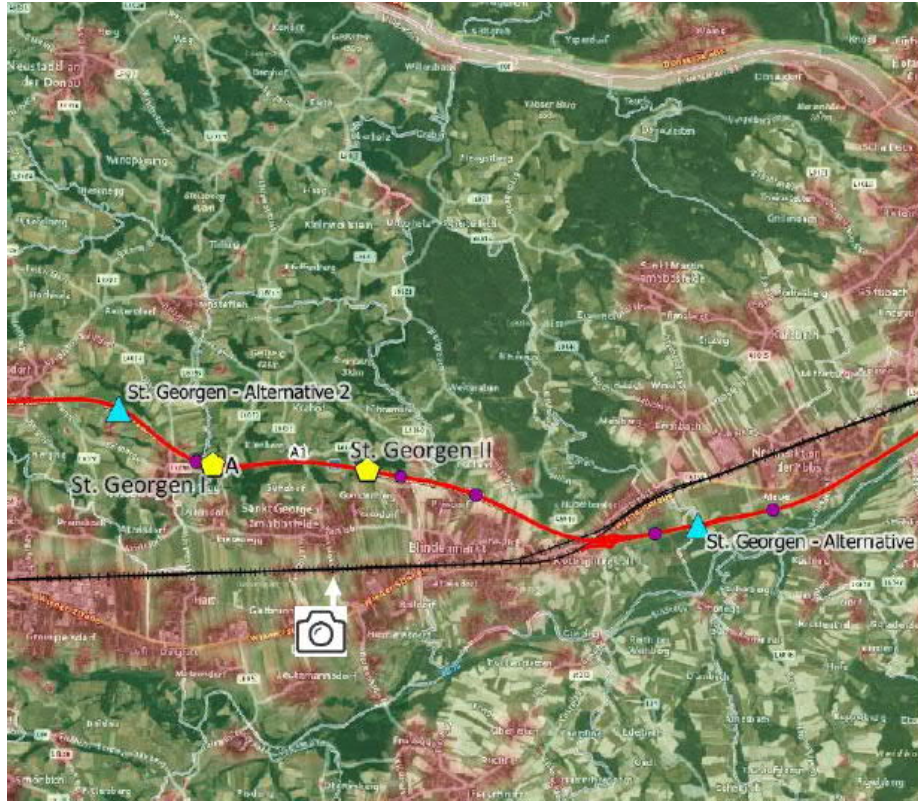
RETROFITTING



A4, Göttlesbrunn
erected in 2013



RETROFITTING



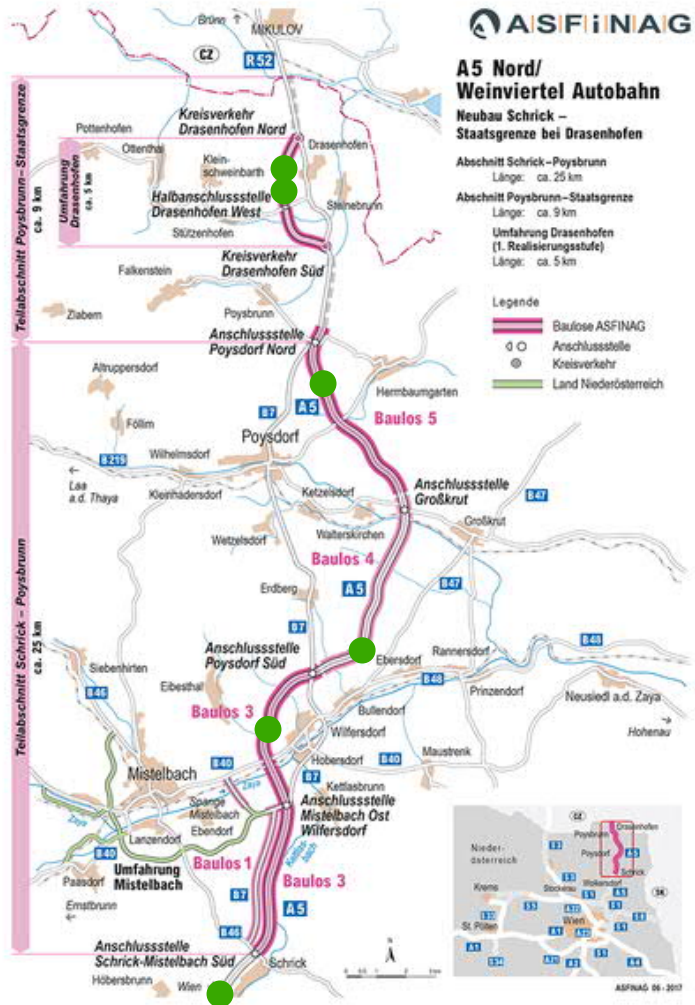
A1, St. Georgen am Ybbsfelde
implementation problem
with the corridor exemption
because of
noise protection wall



NEW CONSTRUCTION

2019

2017



PRESERVATION OF FUNCTIONALITY



- 📍 Current **functionality checks** in accordance with the check list „Checking of functionality of wildlife crossings along highways in Austria“
- 📍 Current **monitorings** of the acceptance of the wildlife crossings by animals

THE OPERATION OF GREEN CROSSINGS



THE OPERATION OF GREEN CROSSINGS

- 📍 Usually, the monitoring of green crossings focuses on deers, boars, red deers etc.
- 📍 For these species, the green crossings along the motorways and expressway network have been proven to work!
- 📍 But what about the **species with small action ranges**, such as butterflies, grasshoppers, ground beetles or reptiles?

MONITORING OF GREEN CROSSINGS 2018

RESEARCH FACTS:



Green crossings



Overpasses + underpasses



Different landscapes



Ground-based to flying species

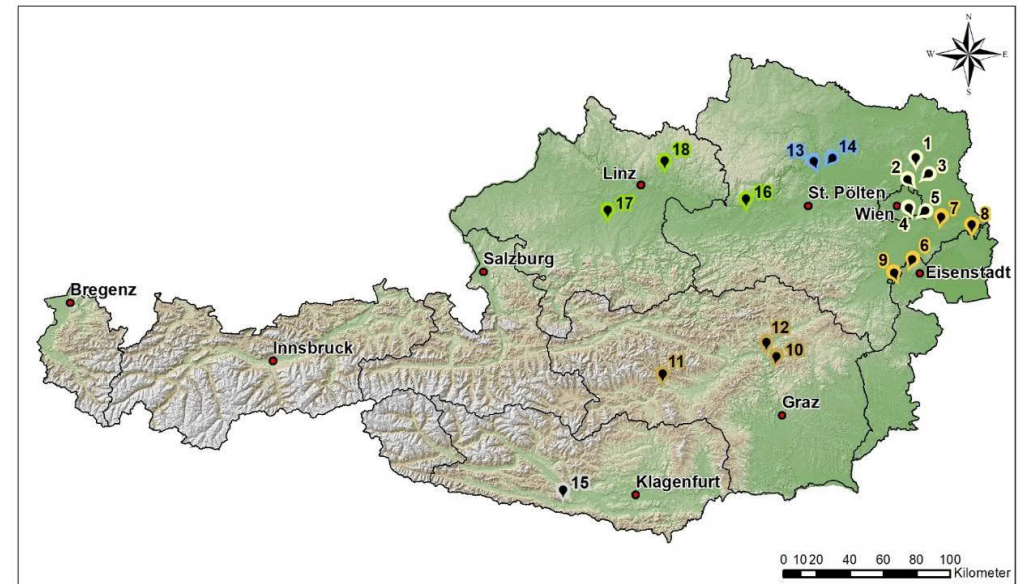


Small to large

MONITORING OF GREEN CROSSINGS 2018

RESEARCH FACTS:

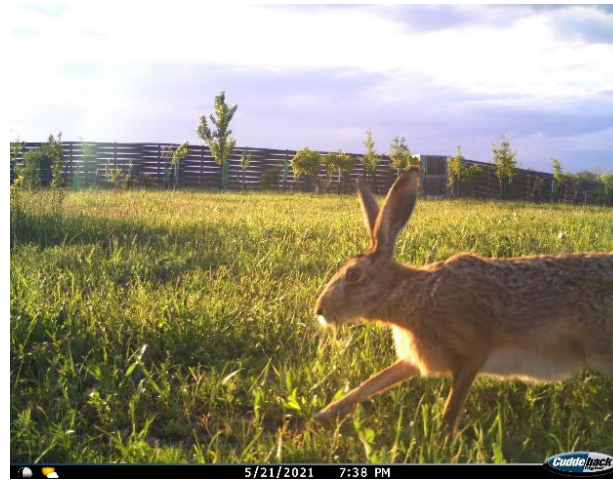
Region	Nr.	Bezeichnung	Querungstyp
Weinviertel, Marchfeld (pannonian region)	1	A5, westlich Wolkersdorf	green overpass
	2	S1 Ost, beiderseits der Nordbahnbrücke	green overpass
	3	S1-Ost, Seyring	green overpass
	4	S1 Süd, Schwechat	green overpass
	5	S1 Süd, Schwechat, mit Radweg	green overpass
Arbesthaler Hügelland, Burgenland (pannonian region)	6	A3, Müllendorf-Steinbrunn	green overpass
	7	A4, Göttlesbrunn-Arbesthal	green overpass
	8	A6, bei Neudorf	green overpass
	9	S4, Pötsching	green overpass
Valley of the river Mur (alpin)	10	S35, Rötzelstein	green overpass + green underpass
	11	S36, Georgnerbach	green underpass
	12	S35, Stausee Zlatten	green overpass
Wetlands of the Danube	13	S33, Marktwasser	green underpass
	14	S5, Mühlkamp	green underpass
South of Carinthia (alpin)	15	A2, Amoldstein	green overpass
Alpine foothills	16	A1, Bergland	green overpass
	17	A8, Hammersedt	green overpass
	18	S10 Kleine Gusen	green underpass



MONITORING OF GREEN CROSSINGS 2018

RESEARCH QUESTION:

Do the ASFINAG green crossings fulfill their function **as crossing aids and habitats** for wildlife?



MONITORING OF GREEN CROSSINGS 2018

HYPOTHESES:

The ASFINAG green crossings...

- 📍 ... are used **by mammals** from local and regional surroundings.
- 📍 ... are used **by less mobile species** of the surrounding areas.
- 📍 ... are used **by protected species**.
- 📍 ... serve as a **habitat for wildlife**.

MONITORING OF GREEN CROSSINGS 2018

METHODOLOGY: MONITORING CONCEPT

Indicator group	Sampling method	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Habitat structures	On-site inspections and sketch drawing				1x								
Large mammals	Camera trap		2 weeks		2 weeks			2 weeks			2 weeks		
Wild cat	Lure stick with valerian		2 weeks		2 weeks			2 weeks			2 weeks		
Small mammals	Camera traps along mown stripes				2 weeks		2 weeks	2 weeks	2 weeks		2 weeks		
Dormice	Nesting boxes								3 x				
Otters	Analysing of marking stones		1x		1x			1x			1x		
Reptiles	Hiding places				1x	1x	1x	1x	1x	1x			
Ground beetles	Barber traps				2x (every 14 days)	2x (every 14 days)	2x (every 14 days)	2x (every 14 days)	2x (every 14 days)	2x (every 14 days)	2x (every 14 days)		
Butterflies etc.	Visual evaluation (e.g. with nets)					1x	1x	1x	1x				
Grasshoppers	Visual and acoustic evaluation (e.g. with nets)						1x	1x	1x				
Diverse	Sand bed evaluation		1x		1x			1x			1x		

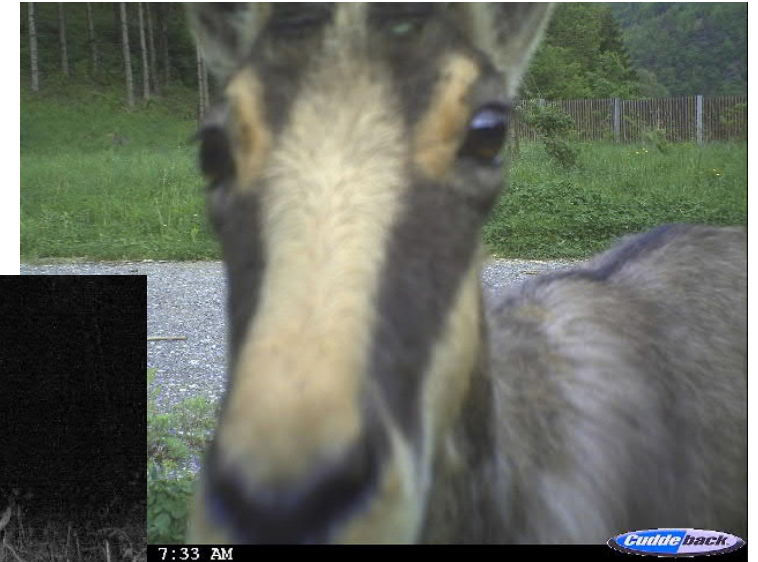
MONITORING OF GREEN CROSSINGS 2018

RESULTS: MAMMALS

over/underpasses	1 A5	2 S1	3 S1	4 S1	5 S1	6 A3	7 A4	8 A6	9 S4	10 S35	11 S36	12 S35	13 S33	14 S5	15 A2	16 A1	17 A8	18 S10
Insectivores																		
White-breasted hedgehog	3	13	6	2	4				1									
Leporidae																		
Hare	229	212	488	148	43	40	7	295	51			2	53	17	36	12	4	
Wild rabbits												X						
Rodents																		
Squirrel			2		X				1	X								
Gopher	2																	
Bank vole																X		
Field mouse								1										
Mouse	X			1				4		X								
Predators																		
Fox	2	3	6	63	31	1	X	X	16	25		15	3	29	12	X	7	3
Pine marten						X												
Stone marten							X		2			X						
Marten		4	8	14	20		2	12	3			X	2	2	2		1	
Stoat			2															
Weasel		X																
Badger			1		1	X		18	4		10		X		1	10	X	
Otter													X					

over/underpasses	1 A5	2 S1	3 S1	4 S1	5 S1	6 A3	7 A4	8 A6	9 S4	10 S35	11 S36	12 S35	13 S33	14 S5	15 A2	16 A1	17 A8	18 S10
Cloven hoofed animals																		
Boare							4	14	58				47	X				
Fallow deers													6					
Red deer							8		72						5			
Deer	62	1	242	199	120	17	68	55	138	33	1	99	75	55	62	32	122	17
Others																		
Small mammals indet.		X	X	X	X				X									
Middle sized mammals indet.	X	X	X	X	X				X						X		X	
Human	36	279	39	193	1136	15	8		5	40	12	4	49	NA	26	5	89	NA
Horse														X				X
Domestic dog	X	X	X	X	X	X				X	X		X	X	X	X	X	X
Domestic cat	X		8	9	2		X	1	3	51				10		2	11	13

MONITORING OF WILDLIFE CROSSINGS 2018



MONITORING OF GREEN CROSSINGS 2018

RESULTS: REPTILES

Art	2_S1 Ost, Nordbahnbrücke		3_S1-Ost Seyring		4_S1 Süd Schwechat		5_S1 Süd, Schwechat Radweg		6_A3 Müllendorf-Steinbrunn		7_A4 Göttlesbrunn-Arbesthal		8_A6, bei Neudorf		15_A2 Arnoldstein		17_A8 Hammerstedt	
	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ	oGQ	nGQ
Slow worm															1	2	1	
Nose-Horned Viper															1	1		
Wall lizard															1	2		
Smooth snake															2	1		
Green lizard															5			
Sand lizard			1	2	2			1		2			10	29				
Sum Ind.			1	2	2			1		2			10	29	10	6	1	



MONITORING OF GREEN CROSSINGS 2018

RESULTS: REPTILES



A6, Neudorf



A2, Arnoldstein

MONITORING OF GREEN CROSSINGS 2018

RESULTS: REPTILES



S1 Süd bei Schwechat

MONITORING OF GREEN CROSSINGS 2018

RESULTS: GROUND BEETLES

	Habitats of the surroundings (on both sides)	Forest	Forest/Meadow	Meadow
A1 Bergland	Forest - Forest	15%	5%	80%
A4 Göttlesbrunn-Arbesthal	Meadow - Meadow	0%	1%	99%
A5 westlich Wolkersdorf	Meadow - Meadow	0%	1%	99%
S1 Süd Schwechat_Radweg	Meadow - Meadow	1%	7%	92%
S10 Kleine Gusen	Meadow - Meadow	15%	13%	72%
S33 Marktwasser	Forest - Forest	68%	2%	30%
S35 Röthelstein	Forest - Forest	88%	2%	10%
S35 Zlatten	Forest - Forest	51%	6%	43%
S4 Poettschnig	Forest - Forest	20%	7%	73%
S5 Mühlkamp	Forest - Forest/Meadow	19%	22%	59%

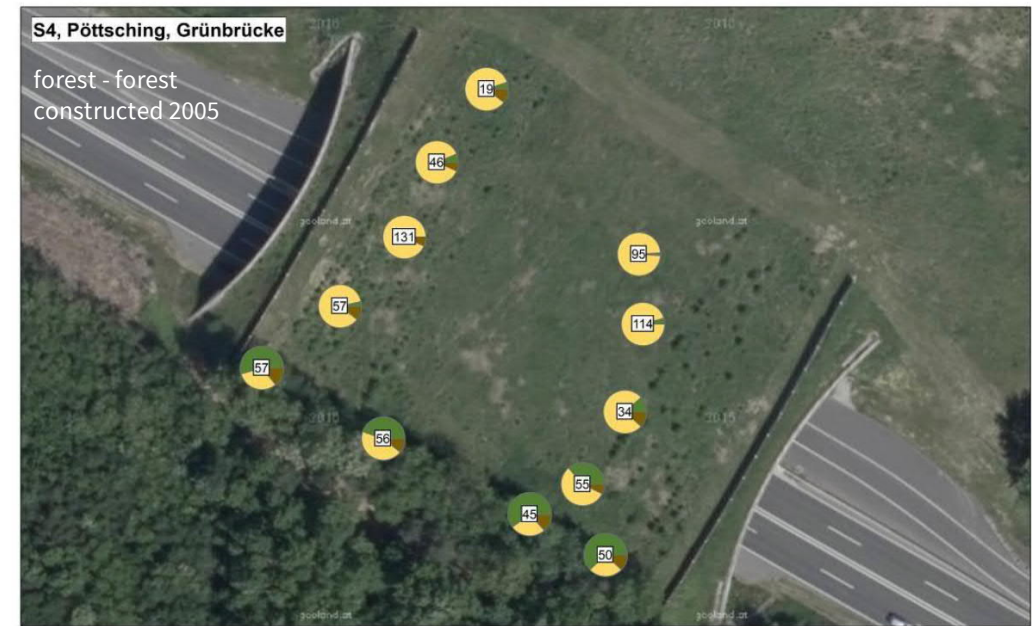


MONITORING OF GREEN CROSSINGS 2018

RESULTS: GROUND BEETLES



- forest
- meadow
- forest-meadow



- forest
- meadow
- forest-meadow

MONITORING OF WILDLIFE CROSSINGS 2018

RESULTS: PROTECTED SPECIES

- 📍 Dormice...
 - were found on A8, Hammersedt, due to continued hedge-structures.
- 📍 Scorpions...
 - were found on A2, Arnoldstein.



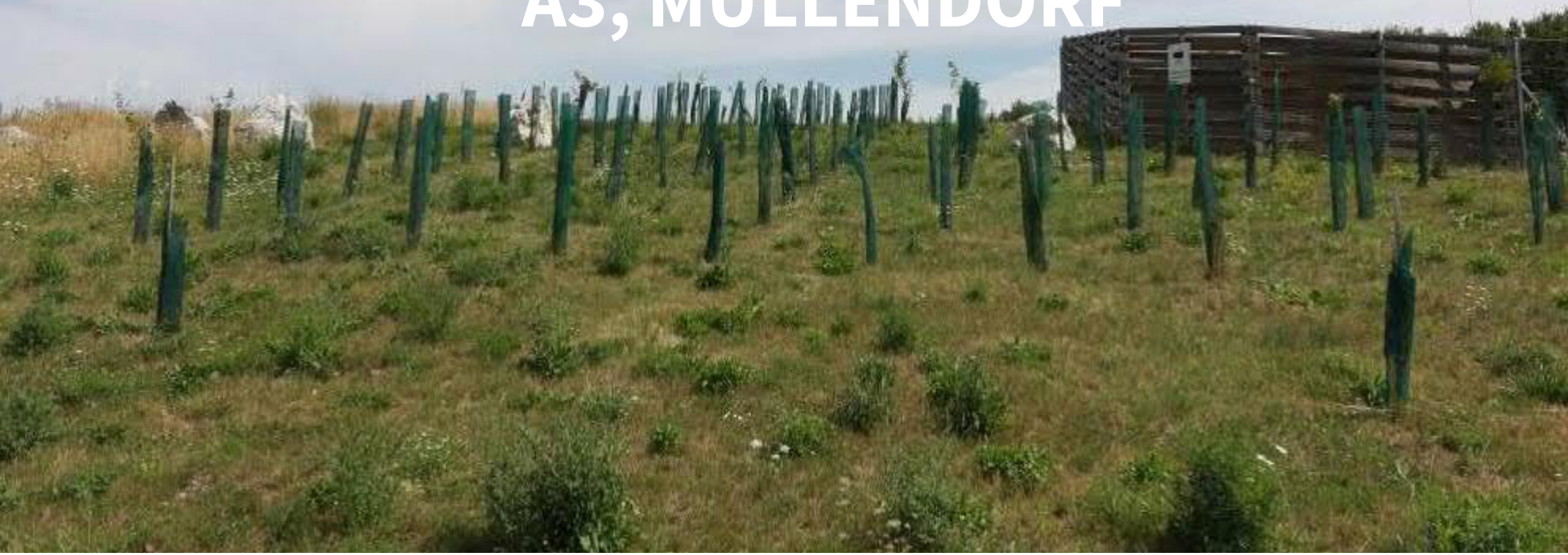
MONITORING OF WILDLIFE CROSSINGS 2018

It has been proven that the ASFINAG wildlife crossings

- 📍 are used by mammals from local and regional surroundings,
 - 📍 are also used by less mobile species of the surrounding areas
 - 📍 are even used by protected species
 - 📍 serve as a habitat for wildlife
-
- 📍 No results: migratory species (large canivores)

Natural structures such as tree stumps, piles of stones und small bushes create perfect habitats for a lot of animals (no forest!).

A3, MÜLLENDORF



MONITORING OF GREEN CROSSINGS 2018



MONITORING OF GREEN CROSSINGS 2018

RESULTS: GREEN BRIDGE A3, MÜLLENDORF-STEINBRUNN

Habitat: open landscape

Relevant species: small mammals, reptiles, butterflies/grasshoppers

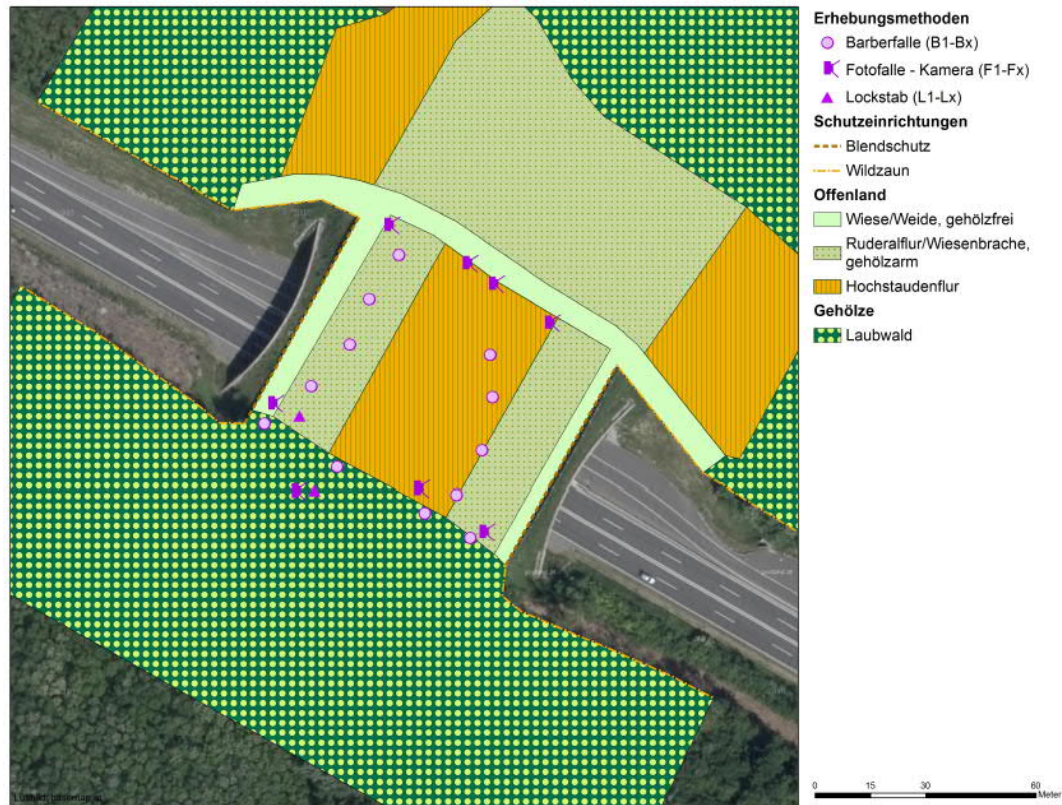
	Species with small action ranges	Species with medium action ranges	Species with large action ranges
Functionality	high	medium	high
Evidence	Butterflies, grasshoppers	Small mammals, reptiles only in the surroundings	Hare, deer, red deer



A photograph of a grassy field with a large green bush on the left and a fence on the right. The text "S4, PÖTTSCHING" is overlaid in the center.

S4, PÖTTSCHING

MONITORING OF GREEN CROSSINGS 2018



MONITORING OF GREEN CROSSINGS 2018

RESULTS: GREEN BRIDGE S4, PÖTTSCHING

Habitat: woodland

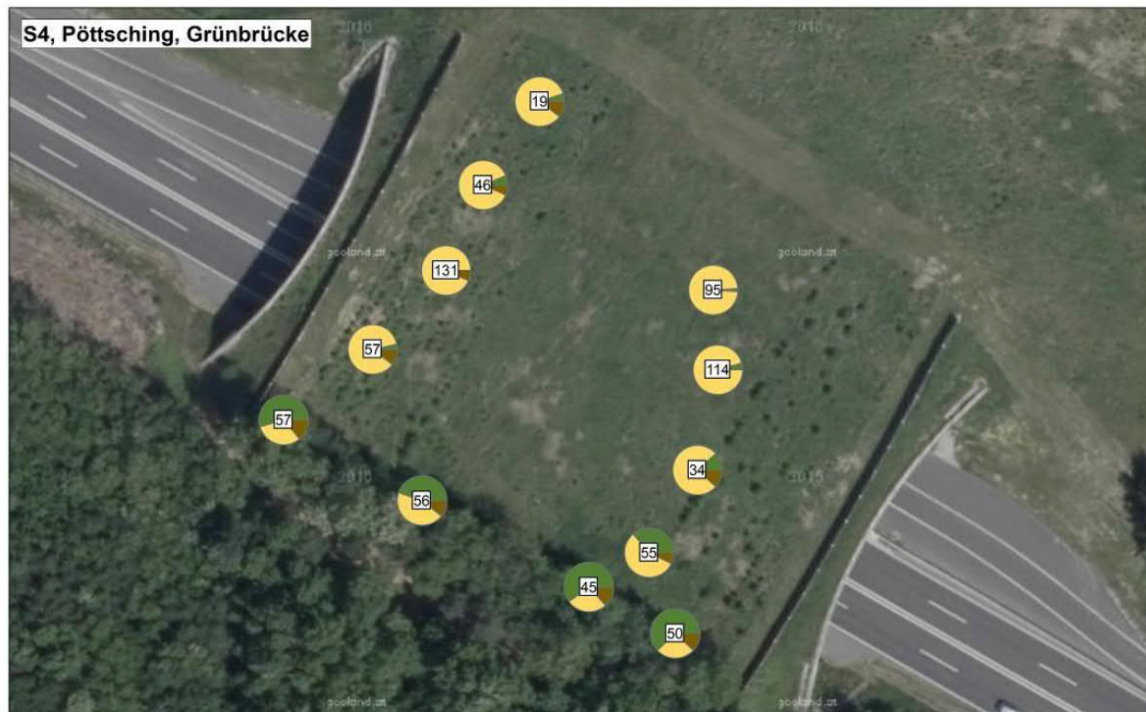
Relevant species: small mammals, ground beetles

	Species with small action ranges	Species with medium action ranges	Species with large action ranges
Functionality	low	high	high
Evidence	Ground beetles	Small mammals (hedgehog!)	Hare, boar, deer, red deer



MONITORING OF GREEN CROSSINGS 2018

RESULTS: GREEN BRIDGE S4, PÖTTSCHING – GROUND BEETLES



- forest
- meadow
- forest-meadow

Legende



**FRAGEN?
WIR SIND FÜR SIE DA!**

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GUTE FAHRT, ÖSTERREICH!

PERMEABILITY – CATEGORY A

Legende

überregionale Lebensraumkorridore AT

Autobahn- und Schnellstraßenabschnitte

ausreichende Ausstattung (passierbare Querung der KAT-A im Korridor vorhanden)

nicht ausreichende Ausstattung (keine (passierbare) Querung der KAT A vorhanden)

Landnutzung

Wald

bebautes Gebiet

Korridore

Arlberg

Brenner

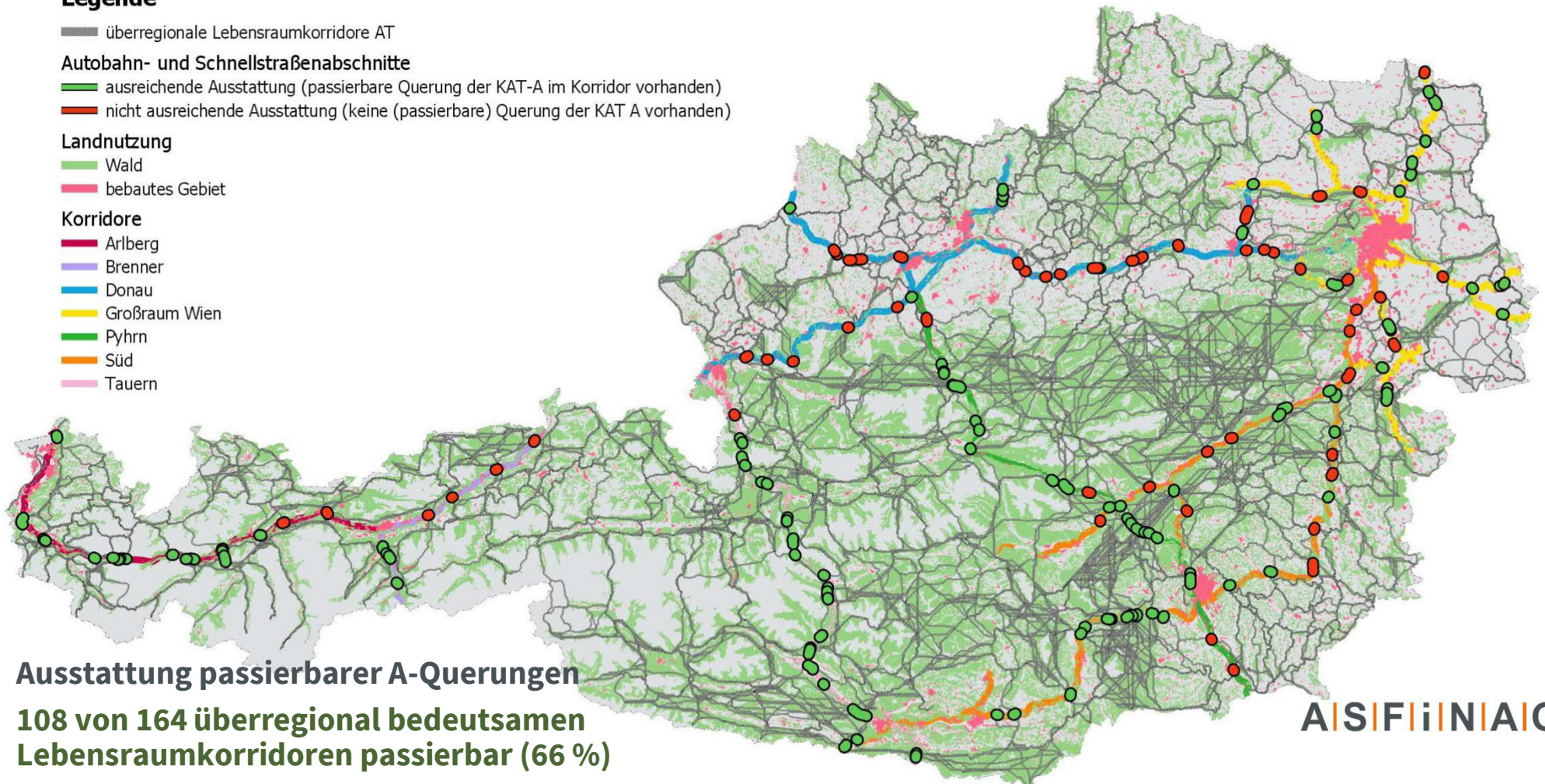
Donau

Großraum Wien

Pyhrn

Süd

Tauern



Ausstattung passierbarer A-Querungen

108 von 164 überregional bedeutsamen Lebensraumkorridoren passierbar (66 %)

GRÜNQUERUNGEN

STATUS GRÜNBRÜCKEN LAUT DIENSTANWEISUNG

- Bestand
- Umsetzung geplant
- Errichtung kritisch / nicht sinnvoll
- Alternativer Standort sinnvoller
- ⊗ Ausschluss



1. + 2. Brenner Korrdiore
3. Kobernausserwald Korridor
4. Machland Korridor
5. Hauptkorridor NÖ Kalkalpen-Tschechien
6. Koralpe Korridor
7. + 8. Korridorgürtel Alpenraum-Ungarn. Alpen Karpaten Korridor

*) Kollersdorf, außerhalb der Dienstweisung Grünbrücken

WHY WILDLIFE CROSSINGS?



- 1. + 2. Brenner Korrdiore
- 3. Kobernausserwald Korridor
- 4. Machland Korridor

- 5. Hauptkorridor NÖ Kalkalpen-Tschechien
- 6. Koralm Korridor
- 7. + 8. Korridorgürtel Alpenraum-Ungarn. Alpen Karpaten Korridor